FP11

MODF, MODD

MD-11-DCFPL-B

EP-DCFPL-B-DL-A

OCT 1976

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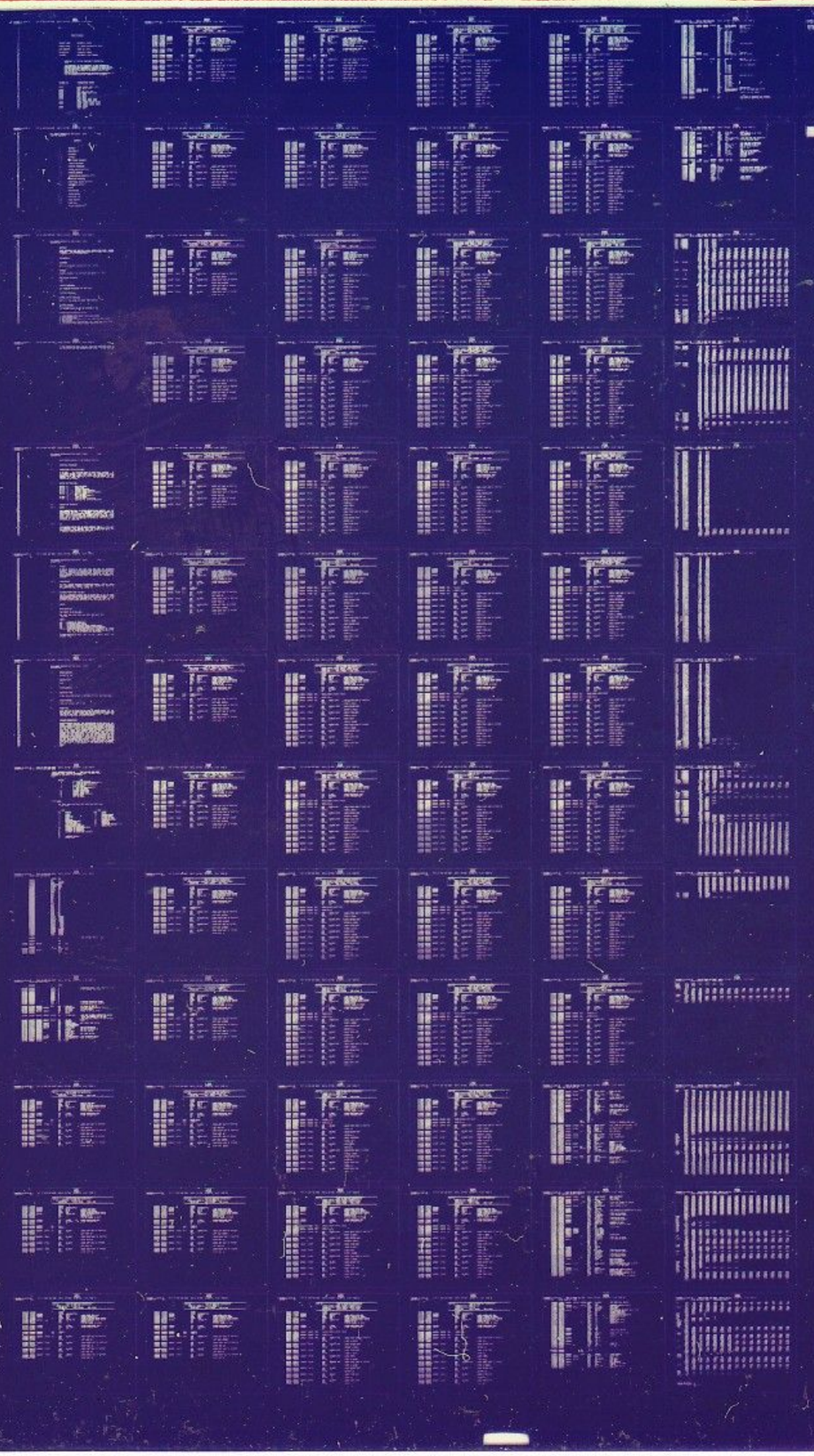

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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DCFPL
PRODUCT NAME: FP11 BASIC INSTRUCTION TESTS
DATE CREATED: MARCH 12, 1973
MAINTAINER: DIAGNOSTIC GROUP
AUTHORS: BOB BRAIN & KEN CHAPMAN

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MAINDEC NO.	INSTRUCTIONS TESTED
DCFPA	LDFPS, STFPS, SETI, SETL SETF, SETD, CFCC
DCFPB	STST
DCFPC	LDF, LDD, STF, STD
DCFPD	ADDF, ADDD, SUBF, SUBD
DCFPE	CMPF, CMPD
DCFPF	MULF, MULD
DCFPG	DIVF, DIVD
DCFPH	CLRF, CLRD, TSTF, TSTD ABSF, ABSD, NEGF, NEGD
DCFPI	LDCFD, LCCDF, STCFD, STCDF
DCFPJ	LDCIF, LDCLF, LDCID, LDCLD STCFI, STCFL, STCDI, STCDL
DCFPK	LDEXP, STEXP
DCFPL	MODF, MODD

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DESCRIPTION

1. ABSTRACT

THESE PROGRAMS TEST THE FP11 IN ALL MODES WITH FIXED NUMBER PATTERNS. THE PROGRAMS SHOULD BE RUN IN ORDER FOR AT LEAST 2 PASSES WITH ALL SWITCHES DOWN.

2. REQUIREMENTS

2.1 EQUIPMENT

PDP11/45 STANDARD COMPUTER WITH FP11 OPTION

2.2 STORAGE

PROGRAM STORAGE - THE ROUTINES USE MEMORY 0 - 17776

2.3 PRELIMINARY PROGRAMS

NONE

3. LOADING PROCEDURE

USE STANDARD PROCEDURE FOR ABS TAPES.

4. STARTING PROCEDURE

4.1 CONTROL SWITCH SETTINGS

SEE 5.1.1 (ALL DOWN FOR WORST CASE TESTING)

4.2 STARTING ADDRESS

THE PROGRAM SHOULD ALWAYS BE STARTED AT 200.

4.3 PROGRAM AND/OR OPERATOR ACTION

1) LOAD PROGRAM INTO MEMORY USING ABS LOADER.
2) LOAD ADDRESS 200.
3) SET SWITCHES (SEE SEC 5.1.1) ALL DOWN FOR WORST CASE
4) PRESS START.
5) THE PROGRAM WILL LOOP AND BELL WILL RING ONCE EVERY PASS
6) A MINIMUM OF TWO PASSES SHOULD ALWAYS BE RUN.

```
                        7) THE DISPLAY ON THE 11/45 WILL SHOW THE ITERATION COUNT IN
                        THE LEFT BYTE AND TEST NUMBER IN THE RIGHT.  TO USE, SET THE
```

DESCRIPTION

DATA DISPLAY SWITCH TO THE DISPLAY POSITION.

5. OPERATING PROCEDURE

5.1 OPERATIONAL SWITCH SETTINGS

AT SA 200 .. ALL SWITCHES DOWN IS WORST CASE TESTING. IF AN ERROR OCCURS, THAT TEST WILL BE LOOPED UPON UNTIL COMPLETION OF 256 CONSECUTIVE PASSES WITH NO ERRORS OF THE SUBTEST IF SW<9> SET TO A 1. THE BELL WILL RING UPON COMPLETION OF A PASS.

5.1.1 SWITCH SETTINGS ARE:

```
SW<15> = 1 ..... HALT ON ERROR
SW<14> = 1 ..... SCOPE LOOP
SW<13> = 1 ..... INHIBIT PRINTOUT
SW<12> = 1 ..... INHIBIT TRACE TRAPPING
SW<11> = 1 ..... INHIBIT ITERATIONS OF SUBTEST
SW<10> = 1 ..... BELL ON ERROR
         0 ..... BELL ON PASS COMPLETE
SW<09> = 1 ..... LOOP ON ERROR
SW<08> = 1 ..... LOOP ON TEST IN SW<7:0>
         0 ..... LOAD SW<7:0> INTO UB REGISTER
```

5.2 SUBROUTINE ABSTRACTS

5.2.1 SCOPE

THIS SUBROUTINE CALL IS PLACED BETWEEN EACH SUBTEST IN THE INSTRUCTION SECTION. IT RECORDS THE STARTING ADDRESS OF EACH SUBTEST AS IT IS BEING ENTERED IN LOCATION "LAD". IF A SCOPE LOOP IS REQUESTED, THE CURRENT SUBTEST WILL BE LOOPED UPON. SW<11> ON A 1 INHIBITS ITERATION OF SUBTESTS. THE CONTENTS OF LAD MAY BE USED TO DETERMINE THE LAST SUBTEST SUCCESSFULLY COMPLETED.

5.2.2 HLT

THIS ROUTINE PRINTS OUT AN ERROR MESSAGE (SEE 6.1.) IF A HLT IS EXECUTED, THE SUBTEST WILL BE LOOPED UPON UNTIL 256 CONSECUTIVE GOOD PASSES ARE COMPLETED IF SW<9> IS ON A 1. TO INHIBIT TYPEOUTS, PUT SW<13> ON A 1.

5.2.3 TRTRAP

IF SW<12> IS ON A 0, THE T BIT WILL BE SET ON ALTERNATE PASSES. WHEN SET, IT CAUSES A TRAP AFTER EACH INSTRUCTION. THE FIRST INSTRUCTION EXECUTED UPON TRAPPING IS AN "RTT" WHICH RETURNS TO THE INTERRUPTED SEQUENCE OF INSTRUCTIONS. THIS SEQUENCE IS CONTINUED UNTIL THE END OF THE PROGRAM IS REACHED.

5.2.4 TRAPCATCHER

A ".+2" - "HALT" SEQUENCE IS REPEATED FROM 0 - 776 TO CATCH ANY UNEXPECTED TRAPS. THUS ANY UNEXPECTED TRAPS OR INTERUPTS WILL HALT AT THE VECTOR + 2.

5.2.5 FLOATING POINT TRAP (TO 244)

THE FP11 INTERRUPT DISABLE BIT IS ALWAYS SET IN ALL OF THESE TESTS (EXCEPT DCFPA) SO NO TRAPS TO 244 SHOULD OCCUR. IF AN INTERRUPT OCCURS, THE PROGRAM WILL HALT AT 766 IN THE ROUTINE CALLED FLTERR AND DISPLAY THE FPS REGISTER IN R0.

6. ERRORS

6.1 ERROR PRINTOUT

THE FORMAT IS AS FOLLOWS:

```
ADR  FPS  ANS1 ANS2 ANS3 ANS4 ANS5 ANS6 ANS7 ANS8
  FEC FEA
```

WHERE:

```
ADR    = ADDRESS OF ERROR HLT
FPS    = FLOATING POINT STATUS
FEC    = FLOATING EXCEPTION CODES (ERROR CODES)
FEA    = FLOATING EXCEPTION ADDRESS (ERROR ADDRESS)
ANS1-8 = ERROR DATA READ FROM THE FP11.  FROM 0-8  OF  THESE
         MAY  BE TYPED DEPENDING ON THE NUMBER FOLLOWING THE
         HLT; I.E., HLT+3 WOULD TYPE ANS1-ANS3.
```

TO FIND THE FAILING TEST, LOOK AT THE LISTING ABOVE THE ADDRESS TYPED.

DESCRIPTION

6.2 ERROR RECOVERY

RESTART AT 200

7. RESTRICTIONS

NONE

8. MISCELLANEOUS

8.1 EXECUTION TIME

A BELL WILL RING WITHIN 15 SECONDS WITH ALL SWITCHES DOWN.

8.2 STACK POINTER

STACK IS INITALLY SET TO 600

8.3 POWER FAIL

EACH TEST CAN BE POWER FAILED WITH NO ERRORS EXCEPT ON THE FEC AND FEA. TO USE, START THE TEST AS USUAL AND POWER DOWN THEN UP AT ANY TIME. THE PROGRAM SHOULD TYPE "POWER" AND CONTINUE TO RUN WITH NO OTHER TYPEOUTS.

9. PROGRAM DESCRIPTION

THESE PROGRAMS TEST ALL THE INSTRUCTIONS ON THE FP11 IN ALL MODES. EACH PROGRAM HAS MANY SUBTESTS (THE CODE BETWEEN 2 SCOPE STATEMENTS) WHICH ARE RUN 256 TIMES BEFORE CONTINUING TO THE NEXT. SW<11> ON A 1 CAUSES EACH SUBTEST TO BE RUN ONLY ONCE. SW<9> ON A 1 ENABLES LOOP ON ERROR. THE ADDRESS ICNT (LOC 1000) AND DISPLAY REGISTER ON THE 11/45 EACH CONTAIN THE ITERATION COUNT IN THE LEFT BYTE AND THE TEST NUMBER IN THE RIGHT BYTE. ALL THE SUBTESTS SHOULD BE RUN SEQUENTIALLY BY STARTING AT 200 NOT BY STARTING AT THE BEGINNING OF THE SUBTEST. TO LOOP ON A PARTICULAR SUBTEST, PUT THE TEST NUMBER (SEE LISTING) IN THE RIGHT BYTE OF THE SWITCH REGISTER AND SW<8> ON A 1. THIS TEST WILL BE LOOPED UPON UNTIL SW<8> IS PUT ON A 0 OR THE RIGHT BYTE IS CHANGED. IF THE TEST IS NON-EXISTANT, THE PROGRAM WILL BE RUN AS USUAL.

.ENDR

```
.TITLE  MAINDEC-11-DCFPL-B      TEST OF MODF AND MODD
;COPYRIGHT 1972, DIGITAL EQUIPMENT CORP., MAYNARD, MASS
;PROGRAM BY BOB BRAIN & KEN CHAPMAN
.REM*
```

SWITCH	USE
8	0 - LOAD UB REGISTER WITH SW<7:0> 1 - LOOP ON TEST IN SW<7:0>
9	LOOP ON ERROR
10	0 - BELL ON PASS COMPLETE 1 - BELL ON ERROR
11	INHIBIT ITERATIONS
12	INHIBIT TRACE TRAP
13	INHIBIT ERROR TYPEOUTS
14	LOOP ON TEST
15	HALT ON ERROR

OUTPUT FORM:

ADR FPS ANS1 ANS2 ANS3 ANS4 ANS5 ANS6 ANS7 ANS8
FEC FEA

FPS BIT	REASON
0	CARRY
1	OVERFLOW
2	ZERO
3	NEGATIVE
4	MAINTAINANCE MODE
5	TRUNCATE MODE
6	LONG INTEGER MODE
7	DOUBLE PRECISION MODE
8	INTERUPT ON CONVERSION ERROR
9	INTERUPT ON OVERFLOW
10	INTERUPT ON UNDERFLOW
11	INTERUPT ON UNDEFINED VARIABLE
12	
13	
14	INTERUPT DISABLE
15	ERROR FLAG*

FEC CODE	ERROR
0	ADDRESS ERROR
2	OPCODE ERROR
4	DIVIDE BY ZERO
6	CONVERSION ERROR
10	OVERFLOW
12	UNDERFLOW
14	UNDEFINED VARIABLE (-0)
16	UBREAK TRAP

```
                                .ENABL  ABS
000001                          N=      1
177776                          PS=     177776
177570                          SWR=    177570
177570                          DISPLAY=SWR
104400                          SCOPE=  TRAP
104000                          HLT=    EMT
000004                          TYPE=   IOT
000007                          BELL=   7
000000                          FPS=    %0
000000                          R0=     %0
000001                          R1=     %1
000002                          R2=     %2
000003                          R3=     %3
000004                          R4=     %4
000005                          R5=     %5
000005                          TTY=    %5
000006                          SP=     %6
000007                          PC=     %7
000000                          AC0=    %0
000001                          AC1=    %1
000002                          AC2=    %2
000003                          AC3=    %3
000004                          AC4=    %4
000005                          AC5=    %5
100000                          SW15=   100000
040000                          SW14=    40000
020000                          SW13=    20000
010000                          SW12=    10000
004000                          SW11=     4000
002000                          SW10=     2000
001000                          SW09=     1000
000400                          SW08=      400
170003                          LDUB=   170003
170005                          STAD=   170005
170007                          STQD=   170007
170006                          MRS=    170006
170004                          LDSC=   170004

                000000          .=      0                       ;TRAP CATCHER FROM 0 - 776

                000200          .=      200

000200  000167  000622                  JMP     BEG

                000760          .=      760
000760  170200                  FLTERR: STFPS   FPS
000762  170367  000034                  STST    FEC
000766  000000                          HALT
000770  000002                          RTI
```

```
                001000                          .=      1000

001000  000000                        ICNT:   0               ;ITERATION COUNT - LH   TEST NO. - RH
001002  000000                        ANS1:   0               ;FIRST ANSWER (SEE CODE)
001004  000000                        ANS2:   0
001006  000000                        ANS3:   0
001010  000000                        ANS4:   0
001012  000000                        ANS5:   0
001014  000000                        ANS6:   0
001016  000000                        ANS7:   0
001020  000000                        ANS8:   0
001022  000000                        FEC:    0               ;FLOATING EXCEPTION CODES
001024  000000                        FEA:    0               ;FLOATING EXECPTION ADDRESS

001026  012706  000600                BEG:    MOV     #600,SP         ;** STACK AT 600 **
001032  012737  001054  000004                MOV     #M1120,@#4      ;FIND OUT WHICH MACHINE THIS IS
001040  005737  177772                        TST     @#177772        ;IS PIRQ THERE?
001044  012767  000006  013634                MOV     #6,YESRT        ;FUDGE IN RTT IF 11/45
001052  000403                                BR      BEGIN

001054  016737  014770  000010        M1120:  MOV     FPTADR,@#10     ;LOAD THE ILLEGAL INSTRUCTION VECTOR
                                                                      ; WITH THE ADDRESS OF THE FPU.
                                                                      ; THE FPU WILL HANDLE THE BAD OPCODES
001062  012737  000006  000004        BEGIN:  MOV     #6,@#4          ;RESET 4
001070  012706  000600                        MOV     #600,SP
001074  012737  014706  000014                MOV     #YESRT,@#14     ;SET TRACE TRAP VECTOR
001102  012777  015546  014746                MOV     #POWDWN,@DWNVEC
001110  012777  000340  014742                MOV     #340,@DWNVEC+2
001116  012737  015746  000020                MOV     #.IOT,@#20      ;SET UP VECTOR 20
001124  012700  000030                        MOV     #30,R0          ;SET R0 TO VECTOR 30
001130  012720  015050                        MOV     #.TRP,(0)+      ;SET EMT VECTOR
001134  012720  000340                        MOV     #340,(0)+
001140  012720  014710                        MOV     #.EMT,(0)+      ;SET TRAP VECTOR
001144  012710  000340                        MOV     #340,(0)
001150  012777  000760  014674                MOV     #FLTERR,@FPVECT ;LOAD INTERUPT VECTOR
001156  012777  000340  014670                MOV     #340,@FPVECT+2  ;LOCK UP PROCESSOR
001164  005067  177610                        CLR     ICNT
001170  005067  014676                        CLR     LAD
```

```
                        ;*****************************************************************
                        ;TEST 1         TEST OF MODF FPU INSTRUCTION
                        ;     0 0 * 0 0 =  0 0 & 0 0
                        ;       USING AC0       FPS = 47404     FEC = N/A
                        ;*****************************************************************

001174  104400                      SCOPE
001176  170127  047400              LDFPS   #47404&57760
001202  172467  000030              LDF     N1,0            ;LOAD 0 INTO AC0
001206  171467  000030              MODF    M1,0            ;MODIFY 0 BY 0
001212  170200                      STFPS   FPS             ;STORE FLOATING POINT STATUS
001214  022700  047404              CMP     #47404,FPS      ;CHECK FLOATING POINT STATUS
001220  001401                      BEQ     .+4             ;BRANCH IF OK
001222  104000                      HLT                     ;FPS NOT EQUAL TO 47404

001224  174067  177552              STF     0,ANS1          ;STORE FRACTIONAL PART
001230  174167  177552              STF     0!1,ANS3        ;STORE INTEGER PART
001234  000404                      BR      01

001236  000000  000000      N1:     0,0
001242  000000  000000      M1:     0,0

001246  022767  000000  177526  01: CMP     #0,ANS1         ;CHECK LEFT HALF OF FRACTION
001254  001401                      BEQ     .+4
001256  104004                      HLT+4                   ;LEFT HALF #0

001260  022767  000000  177516      CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
001266  001401                      BEQ     .+4
001270  104004                      HLT+4                   ;RIGHT HALF #0

001272  022767  000000  177506      CMP     #0,ANS3         ;CHECK LEFT HALF OF INTEGER
001300  001401                      BEQ     .+4
001302  104004                      HLT+4                   ;LEFT HALF #0

001304  022767  000000  177476      CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
001312  001401                      BEQ     .+4
001314  104004                      HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 2          TEST OF MODF FPU INSTRUCTION
                        ;     0 0 * 40200 0 =  0 0 & 0 0
                        ;        USING AC0        FPS = 47404      FEC = N/A
                        ;*****************************************************************

001316  104400                          SCOPE
001320  170127  047400                  LDFPS   #47404&57760
001324  172467  000030                  LDF     N2,0            ;LOAD 0 INTO AC0
001330  171467  000030                  MODF    M2,0            ;MODIFY 0 BY 40200
001334  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
001336  022700  047404                  CMP     #47404,FPS      ;CHECK FLOATING POINT STATUS
001342  001401                          BEQ     .+4             ;BRANCH IF OK
001344  104000                          HLT                     ;FPS NOT EQUAL TO 47404

001346  174067  177430                  STF     0,ANS1          ;STORE FRACTIONAL PART
001352  174167  177430                  STF     0!1,ANS3        ;STORE INTEGER PART
001356  000404                          BR      02

001360  000000  000000          N2:     0,0
001364  040200  000000          M2:     40200,0

001370  022767  000000  177404  02:     CMP     #0,ANS1         ;CHECK LEFT HALF OF FRACTION
001376  001401                          BEQ     .+4
001400  104004                          HLT+4                   ;LEFT HALF #0

001402  022767  000000  177374          CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
001410  001401                          BEQ     .+4
001412  104004                          HLT+4                   ;RIGHT HALF #0

001414  022767  000000  177364          CMP     #0,ANS3         ;CHECK LEFT HALF OF INTEGER
001422  001401                          BEQ     .+4
001424  104004                          HLT+4                   ;LEFT HALF #0

001426  022767  000000  177354          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
001434  001401                          BEQ     .+4
001436  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 3          TEST OF MODF FPU INSTRUCTION
                        ;     40200 0 * 0 0 =  0 0 & 0 0
                        ;        USING AC2       FPS = 47404     FEC = N/A
                        ;*****************************************************************

001440  104400                      SCOPE
001442  170127  047400              LDFPS   #47404&57760
001446  172667  000030              LDF     N3,2            ;LOAD 40200 INTO AC2
001452  171667  000030              MODF    M3,2            ;MODIFY 40200 BY 0
001456  170200                      STFPS   FPS             ;STORE FLOATING POINT STATUS
001460  022700  047404              CMP     #47404,FPS      ;CHECK FLOATING POINT STATUS
001464  001401                      BEQ     .+4             ;BRANCH IF OK
001466  104000                      HLT                     ;FPS NOT EQUAL TO 47404

001470  174267  177306              STF     2,ANS1          ;STORE FRACTIONAL PART
001474  174367  177306              STF     2!1,ANS3        ;STORE INTEGER PART
001500  000404                      BR      03

001502  040200  000000      N2:     40200,0
001506  000000  000000      M3:     0,0

001512  022767  000000  177262  03: CMP     #0,ANS1         ;CHECK LEFT HALF OF FRACTION
001520  001401                      BEQ     .+4
001522  104004                      HLT+4                   ;LEFT HALF #0

001524  022767  000000  177252      CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
001532  001401                      BEQ     .+4
001534  104004                      HLT+4                   ;RIGHT HALF #0

001536  022767  000000  177242      CMP     #0,ANS3         ;CHECK LEFT HALF OF INTEGER
001544  001401                      BEQ     .+4
001546  104004                      HLT+4                   ;LEFT HALF #0

001550  022767  000000  177232      CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
001556  001401                      BEQ     .+4
001560  104004                      HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 4          TEST OF MODF FPU INSTRUCTION
                        ;     40200 0 * 40200 0 =  40200 0 0 0
                        ;        USING AC2        FPS = 47404      FEC = N/A
                        ;*****************************************************************

001562  104400                      SCOPE
001564  170127  047400              LDFPS   #47404&57760
001570  172667  000030              LDF     N4,2            ;LOAD 40200 INTO AC2
001574  171667  000030              MODF    M4,2            ;MODIFY 40200 BY 40200
001600  170200                      STFPS   FPS             ;STORE FLOATING POINT STATUS
001602  022700  047404              CMP     #47404,FPS      ;CHECK FLOATING POINT STATUS
001606  001401                      BEQ     .+4             ;BRANCH IF OK
001610  104000                      HLT                     ;FPS NOT EQUAL TO 47404

001612  174267  177164              STF     2,ANS1          ;STORE FRACTIONAL PART
001616  174367  177164              STF     2!1,ANS3        ;STORE INTEGER PART
001622  000404                      BR      04

001624  040200  000000      N4:     40200.0
001630  040200  000000      M4:     40200.0

001634  022767  000000  177140  04: CMP     #0,ANS1         ;CHECK LEFT HALF OF FRACTION
001642  001401                      BEQ     .+4
001644  104004                      HLT+4                   ;LEFT HALF #0

001646  022767  000000  177130      CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
001654  001401                      BEQ     .+4
001656  104004                      HLT+4                   ;RIGHT HALF #0

001660  022767  040200  177120      CMP     #40200,ANS3     ;CHECK LEFT HALF OF INTEGER
001666  001401                      BEQ     .+4
001670  104004                      HLT+4                   ;LEFT HALF #40200

001672  022767  000000  177110      CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
001700  001401                      BEQ     .+4
001702  104004                      HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 5          TEST OF MODF FPU INSTRUCTION
                        ;    40214 146315 * 40200 0 =  40200 0 & 37314 146320
                        ;       USING AC0       FPS = 47400     FEC = N/A
                        ;*****************************************************************

001704  104400                        SCOPE
001706  170127  047400                LDFPS   #47400&57760
001712  172467  000030                LDF     N5,0            ;LOAD 40214 INTO AC0
001716  171467  000030                MODF    M5,0            ;MODIFY 40214 BY 40200
001722  170200                        STFPS   FPS             ;STORE FLOATING POINT STATUS
001724  022700  047400                CMP     #47400,FPS      ;CHECK FLOATING POINT STATUS
001730  001401                        BEQ     .+4             ;BRANCH IF OK
001732  104000                        HLT                     ;FPS NOT EQUAL TO 47400

001734  174067  177042                STF     0,ANS1          ;STORE FRACTIONAL PART
001740  174167  177042                STF     0!1,ANS3        ;STORE INTEGER PART
001744  000404                        BR      05

001746  040214  146315        N5:     40214,146315
001752  040200  000000        M5:     40200,0

001756  022767  037314  177016  05:   CMP     #37314,ANS1     ;CHECK LEFT HALF OF FRACTION
001764  001401                        BEQ     .+4
001766  104004                        HLT+4                   ;LEFT HALF #37314

001770  022767  146320  177006        CMP     #146320,ANS2    ;CHECK RIGHT HALF OF FRACTION
001776  001401                        BEQ     .+4
002000  104004                        HLT+4                   ;RIGHT HALF #146320

002002  022767  040200  176776        CMP     #40200,ANS3     ;CHECK LEFT HALF OF INTEGER
002010  001401                        BEQ     .+4
002012  104004                        HLT+4                   ;LEFT HALF #40200

002014  022767  000000  176766        CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
002022  001401                        BEQ     .+4
002024  104004                        HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 6          TEST OF MODF FPU INSTRUCTION
                        ;     40414 146315 * 40200 0 =  40400 0 & 37514 146320
                        ;        USING AC2        FPS = 47400     FEC = N/A
                        ;*****************************************************************

002026  104400                          SCOPE
002030  170127  047400                  LDFPS   #47400&57760
002034  172667  000030                  LDF     N6,2            ;LOAD 40414 INTO AC2
002040  171667  000030                  MODF    M6,2            ;MODIFY 40414 BY 40200
002044  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
002046  022700  047400                  CMP     #47400,FPS      ;CHECK FLOATING POINT STATUS
002052  001401                          BEQ     .+4             ;BRANCH IF OK
002054  104000                          HLT                     ;FPS NOT EQUAL TO 47400

002056  174267  176720                  STF     2,ANS1          ;STORE FRACTIONAL PART
002062  174367  176720                  STF     2!1,ANS3        ;STORE INTEGER PART
002066  000404                          BR      06

002070  040414  146315          N6:     40414,146315
002074  040200  000000          M6:     40200,0

002100  022767  037514  176674  06:     CMP     #37514,ANS1     ;CHECK LEFT HALF OF FRACTION
002106  001401                          BEQ     .+4
002110  104004                          HLT+4                   ;LEFT HALF #37514

002112  022767  146320  176664          CMP     #146320,ANS2    ;CHECK RIGHT HALF OF FRACTION
002120  001401                          BEQ     .+4
002122  104004                          HLT+4                   ;RIGHT HALF #146320

002124  022767  040400  176654          CMP     #40400,ANS3     ;CHECK LEFT HALF OF INTEGER
002132  001401                          BEQ     .+4
002134  104004                          HLT+4                   ;LEFT HALF #40400

002136  022767  000000  176644          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
002144  001401                          BEQ     .+4
002146  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 7         TEST OF MODF FPU INSTRUCTION
                        ;     40523 31463 * 40200 0 =  40500 0 & 37631 114630
                        ;       USING AC2       FPS = 47400     FEC = N/A
                        ;*****************************************************************

002150  104400                          SCOPE
002152  170127  047400                  LDFPS   #47400&57760
002156  172667  000030                  LDF     N7,2            ;LOAD 40523 INTO AC2
002162  171667  000030                  MODF    M7,2            ;MODIFY 40523 BY 40200
002166  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
002170  022700  047400                  CMP     #47400,FPS      ;CHECK FLOATING POINT STATUS
002174  001401                          BEQ     .+4             ;BRANCH IF OK
002176  104000                          HLT                     ;FPS NOT EQUAL TO 47400

002200  174267  176576                  STF     2,ANS1          ;STORE FRACTIONAL PART
002204  174367  176576                  STF     2!1,ANS3        ;STORE INTEGER PART
002210  000404                          BR      07

002212  040523  031463          N7:     40523,31463
002216  040200  000000          M7:     40200,0

002222  022767  037631  176552  07:     CMP     #37631,ANS1     ;CHECK LEFT HALF OF FRACTION
002230  001401                          BEQ     .+4
002232  104004                          HLT+4                   ;LEFT HALF #37631

002234  022767  114630  176542          CMP     #114630,ANS2    ;CHECK RIGHT HALF OF FRACTION
002242  001401                          BEQ     .+4
002244  104004                          HLT+4                   ;RIGHT HALF #114630

002246  022767  040500  176532          CMP     #40500,ANS3     ;CHECK LEFT HALF OF INTEGER
002254  001401                          BEQ     .+4
002256  104004                          HLT+4                   ;LEFT HALF #40500

002260  022767  000000  176522          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
002266  001401                          BEQ     .+4
002270  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                        ;*************************************************************************
                        ;TEST 10                TEST OF MODF FPU INSTRUCTION
                        ;    40660 0 * 40200 0 =  40640 0 & 40000 0
                        ;       USING AC0       FPS = 47400     FEC = N/A
                        ;*************************************************************************

002272  104400                          SCOPE
002274  170127  047400                  LDFPS   #47400&57760
002300  172467  000030                  LDF     N10,0           ;LOAD 40660 INTO AC0
002304  171467  000030                  MODF    M10,0           ;MODIFY 40660 BY 40200
002310  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
002312  022700  047400                  CMP     #47400,FPS      ;CHECK FLOATING POINT STATUS
002316  001401                          BEQ     .+4             ;BRANCH IF OK
002320  104000                          HLT                     ;FPS NOT EQUAL TO 47400

002322  174067  176454                  STF     0,ANS1          ;STORE FRACTIONAL PART
002326  174167  176454                  STF     0!1,ANS3        ;STORE INTEGER PART
002332  000404                          BR      010

002334  040660  000000          N10:    40660.0
002340  040200  000000          M10:    40200.0

002344  022767  040000  176430  010:    CMP     #40000.ANS1     ;CHECK LEFT HALF OF FRACTION
002352  001401                          BEQ     .+4
002354  104004                          HLT+4                   ;LEFT HALF #40000

002356  022767  000000  176420          CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
002364  001401                          BEQ     .+4
002366  104004                          HLT+4                   ;RIGHT HALF #0

002370  022767  040640  176410          CMP     #40640,ANS3     ;CHECK LEFT HALF OF INTEGER
002376  001401                          BEQ     .+4
002400  104004                          HLT+4                   ;LEFT HALF #40640

002402  022767  000000  176400          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
002410  001401                          BEQ     .+4
002412  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 11                TEST OF MODF FPU INSTRUCTION
                        ;    140200 0 * 40200 0 =  140200 0 & 0 0
                        ;      USING AC2        FPS = 47404     FEC = N/A
                        ;*****************************************************************

002414  104400                        SCOPE
002416  170127  047400                LDFPS   #47404&57760
002422  172667  000030                LDF     N11,2           ;LOAD 140200 INTO AC2
002426  171667  000030                MODF    M11,2           ;MODIFY 140200 BY 40200
002432  170200                        STFPS   FPS             ;STORE FLOATING POINT STATUS
002434  022700  047404                CMP     #47404,FPS      ;CHECK FLOATING POINT STATUS
002440  001401                        BEQ     .+4             ;BRANCH IF OK
002442  104000                        HLT                     ;FPS NOT EQUAL TO 47404

002444  174267  176332                STF     2,ANS1          ;STORE FRACTIONAL PART
002450  174367  176332                STF     2!1,ANS3        ;STORE INTEGER PART
002454  000404                        BR      011

002456  140200  000000        N11:    140200,0
002462  040200  000000        M11:    40200,0

002466  022767  000000  176306  011:  CMP     #0,ANS1         ;CHECK LEFT HALF OF FRACTION
002474  001401                        BEQ     .+4
002476  104004                        HLT+4                   ;LEFT HALF #0

002500  022767  000000  176276        CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
002506  001401                        BEQ     .+4
002510  104004                        HLT+4                   ;RIGHT HALF #0

002512  022767  140200  176266        CMP     #140200,ANS3    ;CHECK LEFT HALF OF INTEGER
002520  001401                        BEQ     .+4
002522  104004                        HLT+4                   ;LEFT HALF #140200

002524  022767  000000  176256        CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
002532  001401                        BEQ     .+4
002534  104004                        HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 12                TEST OF MODF FPU INSTRUCTION
                        ;    140214 146315 * 40200 0 =  140200 0 & 137314 146320
                        ;       USING AC2       FPS = 47410     FEC = N/A
                        ;*****************************************************************

002536  104400                          SCOPE
002540  170127  047400                  LDFPS   #47410&57760
002544  172667  000030                  LDF     N12,2           ;LOAD 140214 INTO AC2
002550  171667  000030                  MODF    M12,2           ;MODIFY 140214 BY 40200
002554  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
002556  022700  047410                  CMP     #47410,FPS      ;CHECK FLOATING POINT STATUS
002562  001401                          BEQ     .+4             ;BRANCH IF OK
002564  104000                          HLT                     ;FPS NOT EQUAL TO 47410

002566  174267  176210                  STF     2,ANS1          ;STORE FRACTIONAL PART
002572  174367  176210                  STF     2!1,ANS3        ;STORE INTEGER PART
002576  000404                          BR      012

002600  140214  146315          N12:    140214,146315
002604  040200  000000          M12:    40200,0 .

002610  022767  137314  176164  012:    CMP     #137314,ANS1    ;CHECK LEFT HALF OF FRACTION
002616  001401                          BEQ     .+4
002620  104004                          HLT+4                   ;LEFT HALF #137314

002622  022767  146320  176154          CMP     #146320,ANS2    ;CHECK RIGHT HALF OF FRACTION
002630  001401                          BEQ     .+4
002632  104004                          HLT+4                   ;RIGHT HALF #146320

002634  022767  140200  176144          CMP     #140200,ANS3    ;CHECK LEFT HALF OF INTEGER
002642  001401                          BEQ     .+4
002644  104004                          HLT+4                   ;LEFT HALF #140200

002646  022767  000000  176134          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
002654  001401                          BEQ     .+4
002656  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 13                TEST OF MODF FPU INSTRUCTION
                        ;    140414 146315 * 40200 0 =  140400 0 & 137514 146320
                        ;      USING AC2      FPS = 47410     FEC = N/A
                        ;*****************************************************************

002660  104400                          SCOPE
002662  170127  047400                  LDFPS   #47410&57760
002666  172667  000030                  LDF     N13,2           ;LOAD 140414 INTO AC2
002672  171667  000030                  MODF    M13,2           ;MODIFY 140414 BY 40200
002676  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
002700  022700  047410                  CMP     #47410,FPS      ;CHECK FLOATING POINT STATUS
002704  001401                          BEQ     .+4             ;BRANCH IF OK
002706  104000                          HLT                     ;FPS NOT EQUAL TO 47410

002710  174267  176066                  STF     2,ANS1          ;STORE FRACTIONAL PART
002714  174367  176066                  STF     2!1,ANS3        ;STORE INTEGER PART
002720  000404                          BR      013

002722  140414  146315          N13:    140414,146315
002726  040200  000000          M13:    40200,0

002732  022767  137514  176042  013:    CMP     #137514,ANS1    ;CHECK LEFT HALF OF FRACTION
002740  001401                          BEQ     .+4
002742  104004                          HLT+4                   ;LEFT HALF #137514

002744  022767  146320  176032          CMP     #146320,ANS2    ;CHECK RIGHT HALF OF FRACTION
002752  001401                          BEQ     .+4
002754  104004                          HLT+4                   ;RIGHT HALF #146320

002756  022767  140400  176022          CMP     #140400,ANS3    ;CHECK LEFT HALF OF INTEGER
002764  001401                          BEQ     .+4
002766  104004                          HLT+4                   ;LEFT HALF #140400

002770  022767  000000  176012          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
002776  001401                          BEQ     .+4
003000  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 14                TEST OF MODF FPU INSTRUCTION
                        ;    140523 31463 * 40200 0 =  140500 0 & 137631 114630
                        ;       USING AC0       FPS = 47410     FEC = N/A
                        ;*****************************************************************

003002  104400                          SCOPE
003004  170127  047400                  LDFPS   #47410&57760
003010  172467  000030                  LDF     N14,0           ;LOAD 140523 INTO AC0
003014  171467  000030                  MODF    M14,0           ;MODIFY 140523 BY 40200
003020  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
003022  022700  047410                  CMP     #47410,FPS      ;CHECK FLOATING POINT STATUS
003026  001401                          BEQ     .+4             ;BRANCH IF OK
003030  104000                          HLT                     ;FPS NOT EQUAL TO 47410

003032  174067  175744                  STF     0,ANS1          ;STORE FRACTIONAL PART
003036  174167  175744                  STF     0!1,ANS3        ;STORE INTEGER PART
003042  000404                          BR      014

003044  140523  031463          N14:    140523,31463
003050  040200  000000          M14:    40200,0

003054  022767  137631  175720  014:    CMP     #137631,ANS1    ;CHECK LEFT HALF OF FRACTION
003062  001401                          BEQ     .+4
003064  104004                          HLT+4                   ;LEFT HALF #137631

003066  022767  114630  175710          CMP     #114630,ANS2    ;CHECK RIGHT HALF OF FRACTION
003074  001401                          BEQ     .+4
003076  104004                          HLT+4                   ;RIGHT HALF #114630

003100  022767  140500  175700          CMP     #140500,ANS3    ;CHECK LEFT HALF OF INTEGER
003106  001401                          BEQ     .+4
003110  104004                          HLT+4                   ;LEFT HALF #140500

003112  022767  000000  175670          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
003120  001401                          BEQ     .+4
003122  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 15                TEST OF MODF FPU INSTRUCTION
                        ;    140660 0 * 40200 0 =  140640 0 & 140000 0
                        ;       USING AC0       FPS = 47410     FEC = N/A
                        ;*****************************************************************

003124  104400                          SCOPE
003126  170127  047400                  LDFPS   #47410&57760
003132  172467  000030                  LDF     N15,0           ;LOAD 140660 INTO AC0
003136  171467  000030                  MODF    M15,0           ;MODIFY 140660 BY 40200
003142  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
003144  022700  047410                  CMP     #47410,FPS      ;CHECK FLOATING POINT STATUS
003150  001401                          BEQ     .+4             ;BRANCH IF OK
003152  104000                          HLT                     ;FPS NOT EQUAL TO 47410

003154  174067  175622                  STF     0,ANS1          ;STORE FRACTIONAL PART
003160  174167  175622                  STF     0!1,ANS3        ;STORE INTEGER PART
003164  000404                          BR      015

003166  140660  000000          N15:    140660,0
003172  040200  000000          M15:    40200,0

003176  022767  140000  175576  015:    CMP     #140000,ANS1    ;CHECK LEFT HALF OF FRACTION
003204  001401                          BEQ     .+4
003206  104004                          HLT+4                   ;LEFT HALF #140000

003210  022767  000000  175566          CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
003216  001401                          BEQ     .+4
003220  104004                          HLT+4                   ;RIGHT HALF #0

003222  022767  140640  175556          CMP     #140640,ANS3    ;CHECK LEFT HALF OF INTEGER
003230  001401                          BEQ     .+4
003232  104004                          HLT+4                   ;LEFT HALF #140640

003234  022767  000000  175546          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
003242  001401                          BEQ     .+4
003244  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 16                TEST OF MODF FPU INSTRUCTION
                        ;    52525 52525 * 40200 0 =  52525 52525 & 0 0
                        ;       USING AC0       FPS = 47404     FEC = N/A
                        ;*****************************************************************

003246  104400                          SCOPE
003250  170127  047400                  LDFPS   #47404&57760
003254  172467  000030                  LDF     N16,0           ;LOAD 52525 INTO AC0
003260  171467  000030                  MODF    M16,0           ;MODIFY 52525 BY 40200
003264  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
003266  022700  047404                  CMP     #47404,FPS      ;CHECK FLOATING POINT STATUS
003272  001401                          BEQ     .+4             ;BRANCH IF OK
003274  104000                          HLT                     ;FPS NOT EQUAL TO 47404

003276  174067  175500                  STF     0,ANS1          ;STORE FRACTIONAL PART
003302  174167  175500                  STF     0!1,ANS3        ;STORE INTEGER PART
003306  000404                          BR      016

003310  052525  052525          N16     52525,52525
003314  040200  000000          M16:    40200,0

003320  022767  000000  175454  016:    CMP     #0,ANS1         ;CHECK LEFT HALF OF FRACTION
003326  001401                          BEQ     .+4
003330  104004                          HLT+4                   ;LEFT HALF #0

003332  022767  000000  175444          CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
003340  001401                          BEQ     .+4
003342  104004                          HLT+4                   ;RIGHT HALF #0

003344  022767  052525  175434          CMP     #52525,ANS3     ;CHECK LEFT HALF OF INTEGER
003352  001401                          BEQ     .+4
003354  104004                          HLT+4                   ;LEFT HALF #52525

003356  022767  052525  175424          CMP     #52525,ANS4     ;CHECK RIGHT HALF OF INTEGER
003364  001401                          BEQ     .+4
003366  104004                          HLT+4                   ;RIGHT HALF #52525
```

```
                        ;*****************************************************************
                        ;TEST 17                TEST OF MODF FPU INSTRUCTION
                        ;    37600 0 * 40200 0 =  0 0 & 37600 0
                        ;      USING AC0       FPS = 47400     FEC = N/A
                        ;*****************************************************************

003370  104400                          SCOPE
003372  170127  047400                  LDFPS   #47400&57760
003376  172467  000030                  LDF     N17,0           ;LOAD 37600 INTO AC0
003402  171467  000030                  MODF    M17,0           ;MODIFY 37600 BY 40200
003406  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
003410  022700  047400                  CMP     #47400,FPS      ;CHECK FLOATING POINT STATUS
003414  001401                          BEQ     .+4             ;BRANCH IF OK
003416  104000                          HLT                     ;FPS NOT EQUAL TO 47400

003420  174067  175356                  STF     0,ANS1          ;STORE FRACTIONAL PART
003424  174167  175356                  STF     0!1,ANS3        ;STORE INTEGER PART
003430  000404                          BR      017

003432  037600  000000          N17:    37600,0
003436  040200  000000          M17:    40200,0

003442  022767  037600  175332  017:    CMP     #37600,ANS1     ;CHECK LEFT HALF OF FRACTION
003450  001401                          BEQ     .+4
003452  104004                          HLT+4                   ;LEFT HALF #37600

003454  022767  000000  175322          CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
003462  001401                          BEQ     .+4
003464  104004                          HLT+4                   ;RIGHT HALF #0

003466  022767  000000  175312          CMP     #0,ANS3         ;CHECK LEFT HALF OF INTEGER
003474  001401                          BEQ     .+4
003476  104004                          HLT+4                   ;LEFT HALF #0

003500  022767  000000  175302          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
003506  001401                          BEQ     .+4
003510  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 20                TEST OF MODF FPU INSTRUCTION
                        ;    40200 0 * 20000 0 =  0 0 & 20000 0
                        ;      USING AC0       FPS = 47400     FEC = N/A
                        ;*****************************************************************

003512  104400                          SCOPE
003514  170127  047400                  LDFPS   #47400&57760
003520  172467  000030                  LDF     N20,0           ;LOAD 40200 INTO AC0
003524  171467  000030                  MODF    M20,0           ;MODIFY 40200 BY 20000
003530  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
003532  022700  047400                  CMP     #47400,FPS      ;CHECK FLOATING POINT STATUS
003536  001401                          BEQ     .+4             ;BRANCH IF OK
003540  104000                          HLT                     ;FPS NOT EQUAL TO 47400

003542  174067  175234                  STF     0,ANS1          ;STORE FRACTIONAL PART
003546  174167  175234                  STF     0!1,ANS3        ;STORE INTEGER PART
003552  000404                          BR      020

003554  040200  000000          N20:    40200,0
003560  020000  000000          M20:    20000,0

003564  022767  020000  175210  020:    CMP     #20000,ANS1     ;CHECK LEFT HALF OF FRACTION
003572  001401                          BEQ     .+4
003574  104004                          HLT+4                   ;LEFT HALF #20000

003576  022767  000000  175200          CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
003604  001401                          BEQ     .+4
003606  104004                          HLT+4                   ;RIGHT HALF #0

003610  022767  000000  175170          CMP     #0,ANS3         ;CHECK LEFT HALF OF INTEGER
003616  001401                          BEQ     .+4
003620  104004                          HLT+4                   ;LEFT HALF #0

003622  022767  000000  175160          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
003630  001401                          BEQ     .+4
003632  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                        ;**********************************************************************
                        ;TEST 21                TEST OF MODF FPU INSTRUCTION
                        ;    40600 0 * 37400 0 =  0 0 & 40000 0
                        ;       USING ACO        FPS = 47400      FEC = N/A
                        ;**********************************************************************

003634  104400                    SCOPE
003636  170127  047400            LOFPS   #47400&57760
003642  172467  000030            LDF     N21.0           ;LOAD 40600 INTO AC0
003646  171467  000030            MODF    M21.0           ;MODIFY 40600 BY 37400
003652  170200                    STFPS   FPS             ;STORE FLOATING POINT STATUS
003654  022700  047400            CMP     #47400,FPS      ;CHECK FLOATING POINT STATUS
003660  001401                    BEQ     .+4             ;BRANCH IF OK
003662  104000                    HLT                     ;FPS NOT EQUAL TO 47400

003664  174067  175112            STF     0,ANS1          ;STORE FRACTIONAL PART
003670  174167  175112            STF     0!1,ANS3        ;STORE INTEGER PART
003674  000404                    BR      021

003676  040600  000000    N21:    40600.0
003702  037400  000000    M21:    37400.0

003706  022767  040000  175066  021:  CMP     #40000,ANS1     ;CHECK LEFT HALF OF FRACTION
003714  001401                      BEQ     .+4
003716  104004                      HLT+4                   ;LEFT HALF #40000

003720  022767  000000  175056        CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
003726  001401                      BEQ     .+4
003730  104004                      HLT+4                   ;RIGHT HALF #0

003732  022767  000000  175046        CMP     #0,ANS3         ;CHECK LEFT HALF OF INTEGER
003740  001401                      BEQ     .+4
003742  104004                      HLT+4                   ;LEFT HALF #0

003744  022767  000000  175036        CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
003752  001401                      BEQ     .+4
003754  104004                      HLT+4                   ;RIGHT HALF #0
```

```
                        ;*****************************************************************
                        ;TEST 22                TEST OF MODF FPU INSTRUCTION
                        ;    40740 0 * 40500 0 =  41250 0 & 0 0
                        ;       USING AC0       FPS = 47404     FEC = N/A
                        ;*****************************************************************

003756  104400                          SCOPE
003760  170127  047400                  LDFPS   #47404&57760
003764  172467  000030                  LDF     N22,0           ;LOAD 40740 INTO AC0
003770  171467  000030                  MODF    M22,0           ;MODIFY 40740 BY 40500
003774  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
003776  022700  047404                  CMP     #47404,FPS      ;CHECK FLOATING POINT STATUS
004002  001401                          BEQ     .+4             ;BRANCH IF OK
004004  104000                          HLT                     ;FPS NOT EQUAL TO 47404

004006  174067  174770                  STF     0,ANS1          ;STORE FRACTIONAL PART
004012  174167  174770                  STF     0!1,ANS3        ;STORE INTEGER PART
004016  000404                          BR      022

004020  040740  000000          N22:    40740.0
004024  040500  000000          M22:    40500.0

004030  022767  000000  174744  022:    CMP     #0,ANS1         ;CHECK LEFT HALF OF FRACTION
004036  001401                          BEQ     .+4
004040  104004                          HLT+4                   ;LEFT HALF #0

004042  022767  000000  174734          CMP     #0,ANS2         ;CHECK RIGHT HALF OF FRACTION
004050  001401                          BEQ     .+4
004052  104004                          HLT+4                   ;RIGHT HALF #0

004054  022767  041250  174724          CMP     #41250,ANS3     ;CHECK LEFT HALF OF INTEGER
004062  001401                          BEQ     .+4
004064  104004                          HLT+4                   ;LEFT HALF #41250

004066  022767  000000  174714          CMP     #0,ANS4         ;CHECK RIGHT HALF OF INTEGER
004074  001401                          BEQ     .+4
004076  104004                          HLT+4                   ;RIGHT HALF #0
```

```
                                ;*****************************************************************
                                ;TEST 23                TEST OF MODD FPU INSTRUCTION
                                ;       0 0 0 0 * 0 0 0 0 =
                                ;       0 0 0 0 & 0 0 0 0
                                ;       USING AC0       FPS = 47604     FEC = N/A
                                ;*****************************************************************
004100  104400                          SCOPE
004102  170127  047600                  LDFPS   #47604&57760
004106  172467  000030                  LDD     N23,0           ;LOAD 0 INTO AC0
004112  171467  000034                  MODD    M23,0           ;MODIFY 0 BY 0
004116  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
004120  022700  047604                  CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
004124  001401                          BEQ     .+4             ;BRANCH IF OK
004126  104000                          HLT                     ;FPS NOT EQUAL TO 47604

004130  174067  174646                  STD     0,ANS1          ;STORE FRACTIONAL PART
004134  174167  174652                  STD     0!1,ANS5        ;STORE INTERGER PART
004140  000410                          BR      023

004142  000000  000000  000000  N23:    0.0.0.0
004150  000000
004152  000000  000000  000000  M23:    0.0.0.0
004160  000000
004162  022767  000000  174612  023:    CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
004170  001401                          BEQ     .+4
004172  104010                          HLT+8.                  ;FIRST # 0

004174  022767  000000  174602          CMP     #0,ANS2         ;CHECK SECOND WORD
004202  001401                          BEQ     .+4
004204  104010                          HLT+8.                  ;SECOND # 0

004206  022767  000000  174572          CMP     #0,ANS3         ;CHECK THIRD WORD
004214  001401                          BEQ     .+4
004216  104010                          HLT+8.                  ;THIRD # 0

004220  022767  000000  174562          CMP     #0,ANS4         ;CHECK FORTH
004226  001401                          BEQ     .+4
004230  104010                          HLT+8.                  ;FORTH # 0

004232  022767  000000  174552          CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
004240  001401                          BEQ     .+4
004242  104010                          HLT+8.                  ;FIRST # 0

004244  022767  000000  174542          CMP     #0,ANS6         ;CHECK SECOND WORD
004252  001401                          BEQ     .+4
004254  104010                          HLT+8.                  ;SECOND # 0

004256  022767  000000  174532          CMP     #0,ANS7         ;CHECK THIRD WORD
004264  001401                          BEQ     .+4
004266  104010                          HLT+8.                  ;THIRD # 0

004270  022767  000000  174522          CMP     #0,ANS8         ;CHECK FORTH WORD
004276  001401                          BEQ     .+4
004300  104010                          HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 24                TEST OF MODD FPU INSTRUCTION
                                ;       0 0 0 0 * 40200 0 0 0 =
                                ;       0 0 0 0 & 0 0 0 0
                                ;       USING AC0       FPS = 47604     FEC = N/A
                                ;*****************************************************************
004302  104400                            SCOPE
004304  170127  047600                    LDFPS   #47604&57760
004310  172467  000030                    LDD     N24,0           ;LOAD 0 INTO AC0
004314  171467  000034                    MODD    M24,0           ;MODIFY 0 BY 40200
004320  170200                            STFPS   FPS             ;STORE FLOATING POINT STATUS
004322  022700  047604                    CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
004326  001401                            BEQ     .+4             ;BRANCH IF OK
004330  104000                            HLT                     ;FPS NOT EQUAL TO 47604

004332  174067  174444                    STD     0,ANS1          ;STORE FRACTIONAL PART
004336  174167  174450                    STD     0!1,ANS5        ;STORE INTERGER PART
004342  000410                            BR      024

004344  000000  000000  000000  N24:     0.0,0.0,0.0
004352  000000
004354  040200  000000  000000  M24:     40200.0,0.0,0.0
004362  000000
004364  022767  000000  174410  024:     CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
004372  001401                            BEQ     .+4
004374  104010                            HLT+8.                  ;FIRST # 0

004376  022767  000000  174400            CMP     #0,ANS2         ;CHECK SECOND WORD
004404  001401                            BEQ     .+4
004406  104010                            HLT+8.                  ;SECOND # 0

004410  022767  000000  174370            CMP     #0,ANS3         ;CHECK THIRD WORD
004416  001401                            BEQ     .+4
004420  104010                            HLT+8.                  ;THIRD # 0

004422  022767  000000  174360            CMP     #0,ANS4         ;CHECK FORTH
004430  001401                            BEQ     .+4
004432  104010                            HLT+8.                  ;FORTH # 0

004434  022767  000000  174350            CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
004442  001401                            BEQ     .+4
004444  104010                            HLT+8.                  ;FIRST # 0

004446  022767  000000  174340            CMP     #0,ANS6         ;CHECK SECOND WORD
004454  001401                            BEQ     .+4
004456  104010                            HLT+8.                  ;SECOND # 0

004460  022767  000000  174330            CMP     #0,ANS7         ;CHECK THIRD WORD
004466  001401                            BEQ     .+4
004470  104010                            HLT+8.                  ;THIRD # 0

004472  022767  000000  174320            CMP     #0,ANS8         ;CHECK FORTH WORD
004500  001401                            BEQ     .+4
004502  104010                            HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 25                TEST OF MODD FPU INSTRUCTION
                                ;       40200 0 0 0 * 0 0 0 0 =
                                ;       0 0 0 0 & 0 0 0 0
                                ;       USING AC0       FPS = 47604     FEC = N/A
                                ;*****************************************************************
004504  104400                          SCOPE
004506  170127  047600                  LDFPS   #47604&57760
004512  172467  000030                  LDD     N25,0           ;LOAD 40200 INTO AC0
004516  171467  000034                  MODD    M25,0           ;MODIFY 40200 BY 0
004522  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
004524  022700  047604                  CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
004530  001401                          BEQ     .+4             ;BRANCH IF OK
004532  104000                          HLT                     ;FPS NOT EQUAL TO 47604

004534  174067  174242                  STD     0,ANS1          ;STORE FRACTIONAL PART
004540  174167  174246                  STD     0!1,ANS5        ;STORE INTERGER PART
004544  000410                          BR      025

004546  040200  000000  000000  N25:    40200,0,0,0
004554  000000
004556  000000  000000  000000  M25:    0,0,0,0
004564  000000
004566  022767  000000  174206  025:    CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
004574  001401                          BEQ     .+4
004576  104010                          HLT+8.                  ;FIRST # 0

004600  022767  000000  174176          CMP     #0,ANS2         ;CHECK SECOND WORD
004606  001401                          BEQ     .+4
004610  104010                          HLT+8.                  ;SECOND # 0

004612  022767  000000  174166          CMP     #0,ANS3         ;CHECK THIRD WORD
004620  001401                          BEQ     .+4
004622  104010                          HLT+8.                  ;THIRD # 0

004624  022767  000000  174156          CMP     #0,ANS4         ;CHECK FORTH
004632  001401                          BEQ     .+4
004634  104010                          HLT+8.                  ;FORTH # 0

004636  022767  000000  174146          CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
004644  001401                          BEQ     .+4
004646  104010                          HLT+8.                  ;FIRST # 0

004650  022767  000000  174136          CMP     #0,ANS6         ;CHECK SECOND WORD
004656  001401                          BEQ     .+4
004660  104010                          HLT+8.                  ;SECOND # 0

004662  022767  000000  174126          CMP     #0,ANS7         ;CHECK THIRD WORD
004670  001401                          BEQ     .+4
004672  104010                          HLT+8.                  ;THIRD # 0

004674  022767  000000  174116          CMP     #0,ANS8         ;CHECK FORTH WORD
004702  001401                          BEQ     .+4
004704  104010                          HLT+8.                  ;FORTH # 0
```

```
                        ;*****************************************************************
                        ;TEST 26                TEST OF MODD FPU INSTRUCTION
                        ;       40200 0 0 0 * 40200 0 0 0 =
                        ;       40200 0 0 0 & 0 0 0 0
                        ;       USING AC0       FPS = 47604     FEC = N/A
                        ;*****************************************************************
004706  104400                  SCOPE
004710  170127  047600          LDFPS   #47604&57760
004714  172467  000030          LDD     N26,0           ;LOAD 40200 INTO AC0
004720  171467  000034          MODD    M26,0           ;MODIFY 40200 BY 40200
004724  170200                  STFPS   FPS             ;STORE FLOATING POINT STATUS
004726  022700  047604          CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
004732  001401                  BEQ     .+4             ;BRANCH IF OK
004734  104000                  HLT                     ;FPS NOT EQUAL TO 47604

004736  174067  174040          STD     0,ANS1          ;STORE FRACTIONAL PART
004742  174167  174044          STD     0!1,ANS5        ;STORE INTERGER PART
004746  000410                  BR      026

004750  040200  000000  000000  N26:    40200,0,0,0
004756  000000
004760  040200  000000  000000  M26:    40200,0,0,0
004766  000000
004770  022767  000000  174004  026:    CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
004776  001401                  BEQ     .+4
005000  104010                  HLT+8.                  ;FIRST # 0

005002  022767  000000  173774          CMP     #0,ANS2         ;CHECK SECOND WORD
005010  001401                  BEQ     .+4
005012  104010                  HLT+8.                  ;SECOND # 0

005014  022767  000000  173764          CMP     #0,ANS3         ;CHECK THIRD WORD
005022  001401                  BEQ     .+4
005024  104010                  HLT+8.                  ;THIRD # 0

005026  022767  000000  173754          CMP     #0,ANS4         ;CHECK FORTH
005034  001401                  BEQ     .+4
005036  104010                  HLT+8.                  ;FORTH # 0

005040  022767  040200  173744          CMP     #40200,ANS5     ;CHECK FIRST WORD OF INTEGER
005046  001401                  BEQ     .+4
005050  104010                  HLT+8.                  ;FIRST # 40200

005052  022767  000000  173734          CMP     #0,ANS6         ;CHECK SECOND WORD
005060  001401                  BEQ     .+4
005062  104010                  HLT+8.                  ;SECOND # 0

005064  022767  000000  173724          CMP     #0,ANS7         ;CHECK THIRD WORD
005072  001401                  BEQ     .+4
005074  104010                  HLT+8.                  ;THIRD # 0

005076  022767  000000  173714          CMP     #0,ANS8         ;CHECK FORTH WORD
005104  001401                  BEQ     .+4
005106  104010                  HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 27                TEST OF MODD FPU INSTRUCTION
                                ;       40214 146314 146314 146315 * 40200 0 0 0 =
                                ;       40200 0 0 0 & 37314 146314 146314 146320
                                ;       USING AC0       FPS = 47600     FEC = N/A
                                ;*****************************************************************
005110  104400                          SCOPE
005112  170127  047600                  LDFPS   #47600&57760
005116  172467  000030                  LDD     N27,0           ;LOAD 40214 INTO AC0
005122  171467  000034                  MODD    M27,0           ;MODIFY 40214 BY 40200
005126  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
005130  022700  047600                  CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
005134  001401                          BEQ     .+4             ;BRANCH IF OK
005136  104000                          HLT                     ;FPS NOT EQUAL TO 47600

005140  174067  173636                  STD     0,ANS1          ;STORE FRACTIONAL PART
005144  174167  173642                  STD     0!1,ANS5        ;STORE INTERGER PART
005150  000410                          BR      027

005152  040214  146314  146314  N27:    40214,146314,146314,146315
005160  146315
005162  040200  000000  000000  M27:    40200,0,0,0
005170  000000
005172  022767  037314  173602  027:    CMP     #37314,ANS1     ;CHECK FIRST WORD OF FRACTION
005200  001401                          BEQ     .+4
005202  104010                          HLT+8.                  ;FIRST # 37314

005204  022767  146314  173572          CMP     #146314,ANS2    ;CHECK SECOND WORD
005212  001401                          BEQ     .+4
005214  104010                          HLT+8.                  ;SECOND # 146314

005216  022767  146314  173562          CMP     #146314,ANS3    ;CHECK THIRD WORD
005224  001401                          BEQ     .+4
005226  104010                          HLT+8.                  ;THIRD # 146314

005230  022767  146320  173552          CMP     #146320,ANS4    ;CHECK FORTH
005236  001401                          BEQ     .+4
005240  104010                          HLT+8.                  ;FORTH # 146320

005242  022767  040200  173542          CMP     #40200,ANS5     ;CHECK FIRST WORD OF INTEGER
005250  001401                          BEQ     .+4
005252  104010                          HLT+8.                  ;FIRST # 40200

005254  022767  000000  173532          CMP     #0,ANS6         ;CHECK SECOND WORD
005262  001401                          BEQ     .+4
005264  104010                          HLT+8.                  ;SECOND # 0

005266  022767  000000  173522          CMP     #0,ANS7         ;CHECK THIRD WORD
005274  001401                          BEQ     .+4
005276  104010                          HLT+8.                  ;THIRD # 0

005300  022767  000000  173512          CMP     #0,ANS8         ;CHECK FORTH WORD
005306  001401                          BEQ     .+4
005310  104010                          HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 30                TEST OF MODD FPU INSTRUCTION
                                ;       40414 146314 146314 146315 * 40200 0 0 0 =
                                ;       40400 0 0 0 & 37514 146314 146314 146320
                                ;       USING AC0       FPS = 47600     FEC = N/A
                                ;*****************************************************************
005312  104400                            SCOPE
005314  170127  047600                    LDFPS   #47600&57760
005320  172467  000030                    LDD     N30,0           ;LOAD 40414 INTO AC0
005324  171467  000034                    MODD    M30,0           ;MODIFY 40414 BY 40200
005330  170200                            STFPS   FPS             ;STORE FLOATING POINT STATUS
005332  022700  047600                    CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
005336  001401                            BEQ     .+4             ;BRANCH IF OK
005340  104000                            HLT                     ;FPS NOT EQUAL TO 47600

005342  174067  173434                    STD     0,ANS1          ;STORE FRACTIONAL PART
005346  174167  173440                    STD     0!1,ANS5        ;STORE INTERGER PART
005352  000410                            BR      030

005354  040414  146314  146314  N30:      40414,146314,146314,146315
005362  146315
005364  040200  000000  000000  M30:      40200,0,0,0
005372  000000
005374  022767  037514  173400  030:      CMP     #37514,ANS1     ;CHECK FIRST WORD OF FRACTION
005402  001401                            BEQ     .+4
005404  104010                            HLT+8.                  ;FIRST # 37514

005406  022767  146314  173370            CMP     #146314,ANS2    ;CHECK SECOND WORD
005414  001401                            BEQ     .+4
005416  104010                            HLT+8.                  ;SECOND # 146314

005420  022767  146314  173360            CMP     #146314,ANS3    ;CHECK THIRD WORD
005426  001401                            BEQ     .+4
005430  104010                            HLT+8.                  ;THIRD # 146314

005432  022767  146320  173350            CMP     #146320,ANS4    ;CHECK FORTH
005440  001401                            BEQ     .+4
005442  104010                            HLT+8.                  ;FORTH # 146320

005444  022767  040400  173340            CMP     #40400,ANS5     ;CHECK FIRST WORD OF INTEGER
005452  001401                            BEQ     .+4
005454  104010                            HLT+8.                  ;FIRST # 40400

005456  022767  000000  173330            CMP     #0,ANS6         ;CHECK SECOND WORD
005464  001401                            BEQ     .+4
005466  104010                            HLT+8.                  ;SECOND # 0

005470  022767  000000  173320            CMP     #0,ANS7         ;CHECK THIRD WORD
005476  001401                            BEQ     .+4
005500  104010                            HLT+8.                  ;THIRD # 0

005502  022767  000000  173310            CMP     #0,ANS8         ;CHECK FORTH WORD
005510  001401                            BEQ     .+4
005512  104010                            HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 31                TEST OF MODD FPU INSTRUCTION
                                ;       40523 31463 31463 31463 * 40200 0 0 0 =
                                ;       40500 0 0 0 & 37631 114631 114631 114630
                                ;       USING AC0       FPS = 47600     FEC = N/A
                                ;*****************************************************************
                                        SCOPE
005514  104400
005516  170127  047600                  LDFPS   #47600&57760
005522  172467  000030                  LDD     N31,0           ;LOAD 40523 INTO AC0
005526  171467  000034                  MODD    M31,0           ;MODIFY 40523 BY 40200
005532  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
005534  022700  047600                  CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
005540  001401                          BEQ     .+4             ;BRANCH IF OK
005542  104000                          HLT                     ;FPS NOT EQUAL TO 47600

005544  174067  173232                  STD     0,ANS1          ;STORE FRACTIONAL PART
005550  174167  173236                  STD     0!1,ANS5        ;STORE INTERGER PART
005554  000410                          BR      031

005556  040523  031463  031463  N31:    40523,31463,31463,31463
005564  031463
005566  040200  000000  000000  M31:    40200,0,0,0
005574  000000
005576  022767  037631  173176  031:    CMP     #37631,ANS1     ;CHECK FIRST WORD OF FRACTION
005604  001401                          BEQ     .+4
005606  104010                          HLT+8.                  ;FIRST # 37631

005610  022767  114631  173166          CMP     #114631,ANS2    ;CHECK SECOND WORD
005616  001401                          BEQ     .+4
005620  104010                          HLT+8.                  ;SECOND # 114631

005622  022767  114631  173156          CMP     #114631,ANS3    ;CHECK THIRD WORD
005630  001401                          BEQ     .+4
005632  104010                          HLT+8.                  ;THIRD # 114631

005634  022767  114630  173146          CMP     #114630,ANS4    ;CHECK FORTH
005642  001401                          BEQ     .+4
005644  104010                          HLT+8.                  ;FORTH # 114630

005646  022767  040500  173136          CMP     #40500,ANS5     ;CHECK FIRST WORD OF INTEGER
005654  001401                          BEQ     .+4
005656  104010                          HLT+8.                  ;FIRST # 40500

005660  022767  000000  173126          CMP     #0,ANS6         ;CHECK SECOND WORD
005666  001401                          BEQ     .+4
005670  104010                          HLT+8.                  ;SECOND # 0

005672  022767  000000  173116          CMP     #0,ANS7         ;CHECK THIRD WORD
005700  001401                          BEQ     .+4
005702  104010                          HLT+8.                  ;THIRD # 0

005704  022767  000000  173106          CMP     #0,ANS8         ;CHECK FORTH WORD
005712  001401                          BEQ     .+4
005714  104010                          HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 32                TEST OF MODD FPU INSTRUCTION
                                ;       40660 0 0 0 * 40200 0 0 0 =
                                ;       40640 0 0 0 & 40000 0 0 0
                                ;       USING AC0       FPS = 47600     FEC = N/A
                                ;*****************************************************************
005716  104400                            SCOPE
005720  170127  047600                    LDFPS   #47600&57760
005724  172467  000030                    LDD     N32,0           ;LOAD 40660 INTO AC0
005730  171467  000034                    MODD    M32,0           ;MODIFY 40660 BY 40200
005734  170200                            STFPS   FPS             ;STORE FLOATING POINT STATUS
005736  022700  047600                    CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
005742  001401                            BEQ     .+4             ;BRANCH IF OK
005744  104000                            HLT                     ;FPS NOT EQUAL TO 47600

005746  174067  173030                    STD     0,ANS1          ;STORE FRACTIONAL PART
005752  174167  173034                    STD     0!1,ANS5        ;STORE INTERGER PART
005756  000410                            BR      032

005760  040660  000000  000000  N32:      40660,0,0,0
005766  000000
005770  040200  000000  000000  M32:      40200,0,0,0
005776  000000
006000  022767  040000  172774  032:      CMP     #40000,ANS1     ;CHECK FIRST WORD OF FRACTION
006006  001401                            BEQ     .+4
006010  104010                            HLT+8.                  ;FIRST # 40000

006012  022767  000000  172764            CMP     #0,ANS2         ;CHECK SECOND WORD
006020  001401                            BEQ     .+4
006022  104010                            HLT+8.                  ;SECOND # 0

006024  022767  000000  172754            CMP     #0,ANS3         ;CHECK THIRD WORD
006032  001401                            BEQ     .+4
006034  104010                            HLT+8.                  ;THIRD # 0

006036  022767  000000  172744            CMP     #0,ANS4         ;CHECK FORTH
006044  001401                            BEQ     .+4
006046  104010                            HLT+8.                  ;FORTH # 0

006050  022767  040640  172734            CMP     #40640,ANS5     ;CHECK FIRST WORD OF INTEGER
006056  001401                            BEQ     .+4
006060  104010                            HLT+8.                  ;FIRST # 40640

006062  022767  000000  172724            CMP     #0,ANS6         ;CHECK SECOND WORD
006070  001401                            BEQ     .+4
006072  104010                            HLT+8.                  ;SECOND # 0

006074  022767  000000  172714            CMP     #0,ANS7         ;CHECK THIRD WORD
006102  001401                            BEQ     .+4
006104  104010                            HLT+8.                  ;THIRD # 0

006106  022767  000000  172704            CMP     #0,ANS8         ;CHECK FORTH WORD
006114  001401                            BEQ     .+4
006116  104010                            HLT+8.                  ;FORTH # 0
```

```
                        ;*****************************************************************
                        ;TEST 33                TEST OF MODD FPU INSTRUCTION
                        ;       140200 0 0 0 * 40200 0 0 0 =
                        ;       140200 0 0 0 & 0 0 0 0
                        ;       USING AC0       FPS = 47604     FEC = N/A
                        ;*****************************************************************
006120  104400                  SCOPE
006122  170127  047600          LDFPS   #47604&57760
006126  172467  000030          LDD     N33,0           ;LOAD 140200 INTO AC0
006132  171467  000034          MODD    M33,0           ;MODIFY 140200 BY 40200
006136  170200                  STFPS   FPS             ;STORE FLOATING POINT STATUS
006140  022700  047604          CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
006144  001401                  BEQ     .+4             ;BRANCH IF OK
006146  104000                  HLT                     ;FPS NOT EQUAL TO 47604

006150  174067  172626          STD     0,ANS1          ;STORE FRACTIONAL PART
006154  174167  172632          STD     0!1,ANS5        ;STORE INTERGER PART
006160  000410                  BR      033

006162  140200  000000  000000  N33:    140200,0,0,0
006170  000000
006172  040200  000000  000000  M33:    40200,0,0,0
006200  000000
006202  022767  000000  172572  033:    CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
006210  001401                  BEQ     .+4
006212  104010                  HLT+8.                  ;FIRST # 0

006214  022767  000000  172562          CMP     #0,ANS2         ;CHECK SECOND WORD
006222  001401                  BEQ     .+4
006224  104010                  HLT+8.                  ;SECOND # 0

006226  022767  000000  172552          CMP     #0,ANS3         ;CHECK THIRD WORD
006234  001401                  BEQ     .+4
006236  104010                  HLT+8.                  ;THIRD # 0

006240  022767  000000  172542          CMP     #0,ANS4         ;CHECK FORTH
006246  001401                  BEQ     .+4
006250  104010                  HLT+8.                  ;FORTH # 0

006252  022767  140200  172532          CMP     #140200,ANS5    ;CHECK FIRST WORD OF INTEGER
006260  001401                  BEQ     .+4
006262  104010                  HLT+8.                  ;FIRST # 140200

006264  022767  000000  172522          CMP     #0,ANS6         ;CHECK SECOND WORD
006272  001401                  BEQ     .+4
006274  104010                  HLT+8.                  ;SECOND # 0

006276  022767  000000  172512          CMP     #0,ANS7         ;CHECK THIRD WORD
006304  001401                  BEQ     .+4
006306  104010                  HLT+8.                  ;THIRD # 0

006310  022767  000000  172502          CMP     #0,ANS8         ;CHECK FORTH WORD
006316  001401                  BEQ     .+4
006320  104010                  HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 34                TEST OF MODD FPU INSTRUCTION
                                ;       140214 146314 146314 146315 * 40200 0 0 0 =
                                ;       140200 0 0 0 & 137314 146314 146314 146320
                                ;       USING AC0       FPS = 47610     FEC = N/A
                                ;*****************************************************************
006322  104400                          SCOPE
006324  170127  047600                  LDFPS   #47610&57760
006330  172467  000030                  LDD     N34,0           ;LOAD 140214 INTO AC0
006334  171467  000034                  MODD    M34,0           ;MODIFY 140214 BY 40200
006340  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
006342  022700  047610                  CMP     #47610,FPS      ;CHECK FLOATING POINT STATUS
006346  001401                          BEQ     .+4             ;BRANCH IF OK
006350  104000                          HLT                     ;FPS NOT EQUAL TO 47610

006352  174067  172424                  STD     0,ANS1          ;STORE FRACTIONAL PART
006356  174167  172430                  STD     0!1,ANS5        ;STORE INTERGER PART
006362  000410                          BR      034

006364  140214  146314  146314  N34:    140214,146314,146314,146315
006372  146315
006374  040200  000000  000000  M34:    40200,0,0,0
006402  000000
006404  022767  137314  172370  034:    CMP     #137314,ANS1    ;CHECK FIRST WORD OF FRACTION
006412  001401                          BEQ     .+4
006414  104010                          HLT+8.                  ;FIRST # 137314

006416  022767  146314  172360          CMP     #146314,ANS2    ;CHECK SECOND WORD
006424  001401                          BEQ     .+4
006426  104010                          HLT+8.                  ;SECOND # 146314

006430  022767  146314  172350          CMP     #146314,ANS3    ;CHECK THIRD WORD
006436  001401                          BEQ     .+4
006440  104010                          HLT+8.                  ;THIRD # 146314

006442  022767  146320  172340          CMP     #146320,ANS4    ;CHECK FORTH
006450  001401                          BEQ     .+4
006452  104010                          HLT+8.                  ;FORTH # 146320

006454  022767  140200  172330          CMP     #140200,ANS5    ;CHECK FIRST WORD OF INTEGER
006462  001401                          BEQ     .+4
006464  104010                          HLT+8.                  ;FIRST # 140200

006466  022767  000000  172320          CMP     #0,ANS6         ;CHECK SECOND WORD
006474  001401                          BEQ     .+4
006476  104010                          HLT+8.                  ;SECOND # 0

006500  022767  000000  172310          CMP     #0,ANS7         ;CHECK THIRD WORD
006506  001401                          BEQ     .+4
006510  104010                          HLT+8.                  ;THIRD # 0

006512  022767  000000  172300          CMP     #0,ANS8         ;CHECK FORTH WORD
006520  001401                          BEQ     .+4
006522  104010                          HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 35                TEST OF MODD FPU INSTRUCTION
                                ;       140414 146314 146314 146315 * 40200 0 0 0 =
                                ;       140400 0 0 0 & 137514 146314 146314 146320
                                ;       USING AC0       FPS = 47610     FEC = N/A
                                ;*****************************************************************
006524  104400                          SCOPE
006526  170127  047600                  LDFPS   #47610&57760
006532  172467  000030                  LDD     N35,0           ;LOAD 140414 INTO AC0
006536  171467  000034                  MODD    M35,0           ;MODIFY 140414 BY 40200
006542  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
006544  022700  047610                  CMP     #47610,FPS      ;CHECK FLOATING POINT STATUS
006550  001401                          BEQ     .+4             ;BRANCH IF OK
006552  104000                          HLT                     ;FPS NOT EQUAL TO 47610

006554  174067  172222                  STD     0,ANS1          ;STORE FRACTIONAL PART
006560  174167  172226                  STD     0!1,ANS5        ;STORE INTERGER PART
006564  000410                          BR      035

006566  140414  146314  146314  N35:    140414,146314,146314,146315
006574  146315
006576  040200  000000  000000  M35:    40200,0,0,0
006604  000000
006606  022767  137514  172166  035:    CMP     #137514,ANS1    ;CHECK FIRST WORD OF FRACTION
006614  001401                          BEQ     .+4
006616  104010                          HLT+8.                  ;FIRST # 137514

006620  022767  146314  172156          CMP     #146314,ANS2    ;CHECK SECOND WORD
006626  001401                          BEQ     .+4
006630  104010                          HLT+8.                  ;SECOND # 146314

006632  022767  146314  172146          CMP     #146314,ANS3    ;CHECK THIRD WORD
006640  001401                          BEQ     .+4
006642  104010                          HLT+8.                  ;THIRD # 146314

006644  022767  146320  172136          CMP     #146320,ANS4    ;CHECK FORTH
006652  001401                          BEQ     .+4
006654  104010                          HLT+8.                  ;FORTH # 146320

006656  022767  140400  172126          CMP     #140400,ANS5    ;CHECK FIRST WORD OF INTEGER
006664  001401                          BEQ     .+4
006666  104010                          HLT+8.                  ;FIRST # 140400

006670  022767  000000  172116          CMP     #0,ANS6         ;CHECK SECOND WORD
006676  001401                          BEQ     .+4
006700  104010                          HLT+8.                  ;SECOND # 0

006702  022767  000000  172106          CMP     #0,ANS7         ;CHECK THIRD WORD
006710  001401                          BEQ     .+4
006712  104010                          HLT+8.                  ;THIRD # 0

006714  022767  000000  172076          CMP     #0,ANS8         ;CHECK FORTH WORD
006722  001401                          BEQ     .+4
006724  104010                          HLT+8.                  ;FORTH # 0
```

```
                        ;*****************************************************************
                        ;TEST 36                TEST OF MODD FPU INSTRUCTION
                        ;       140523 31463 31463 31463 * 40200 0 0 0 =
                        ;       140500 0 0 0 & 137631 114631 114631 114630
                        ;       USING AC0       FPS = 47610     FEC = N/A
                        ;*****************************************************************
006726  104400                  SCOPE
006730  170127  047600          LDFPS   #47610&57760
006734  172467  000030          LDD     N36.0           ;LOAD 140523 INTO AC0
006740  171467  000034          MODD    M36.0           ;MODIFY 140523 BY 40200
006744  170200                  STFPS   FPS             ;STORE FLOATING POINT STATUS
006746  022700  047610          CMP     #47610,FPS      ;CHECK FLOATING POINT STATUS
006752  001401                  BEQ     .+4             ;BRANCH IF OK
006754  104000                  HLT                     ;FPS NOT EQUAL TO 47610

006756  174067  172020          STD     0,ANS1          ;STORE FRACTIONAL PART
006762  174167  172024          STD     0!1,ANS5        ;STORE INTERGER PART
006766  000410                  BR      036

006770  140523  031463  031463  N36:    140523,31463,31463,31463
006776  031463
007000  040200  000000  000000  M36:    40200,0,0,0
007006  000000
007010  022767  137631  171764  036:    CMP     #137631,ANS1    ;CHECK FIRST WORD OF FRACTION
007016  001401                  BEQ     .+4
007020  104010                  HLT+8.                  ;FIRST # 137631

007022  022767  114631  171754          CMP     #114631,ANS2    ;CHECK SECOND WORD
007030  001401                  BEQ     .+4
007032  104010                  HLT+8.                  ;SECOND # 114631

007034  022767  114631  171744          CMP     #114631,ANS3    ;CHECK THIRD WORD
007042  001401                  BEQ     .+4
007044  104010                  HLT+8.                  ;THIRD # 114631

007046  022767  114630  171734          CMP     #114630,ANS4    ;CHECK FORTH
007054  001401                  BEQ     .+4
007056  104010                  HLT+8.                  ;FORTH # 114630

007060  022767  140500  171724          CMP     #140500,ANS5    ;CHECK FIRST WORD OF INTEGER
007066  001401                  BEQ     .+4
007070  104010                  HLT+8.                  ;FIRST # 140500

007072  022767  000000  171714          CMP     #0,ANS6         ;CHECK SECOND WORD
007100  001401                  BEQ     .+4
007102  104010                  HLT+8.                  ;SECOND # 0

007104  022767  000000  171704          CMP     #0,ANS7         ;CHECK THIRD WORD
007112  001401                  BEQ     .+4
007114  104010                  HLT+8.                  ;THIRD # 0

007116  022767  000000  171674          CMP     #0,ANS8         ;CHECK FORTH WORD
007124  001401                  BEQ     .+4
007126  104010                  HLT+8.                  ;FORTH # 0
```

```
                        ;*****************************************************************
                        ;TEST 37                TEST OF MODD FPU INSTRUCTION
                        ;       140660 0 0 0 * 40200 0 0 0 =
                        ;       140640 0 0 0 & 140000 0 0 0
                        ;       USING AC0       FPS = 47610     FEC = N/A
                        ;*****************************************************************
007130  104400                  SCOPE
007132  170127  047600          LDFPS   #47610&57760
007136  172467  000030          LDD     N37,0           ;LOAD 140660 INTO AC0
007142  171467  000034          MODD    M37,0           ;MODIFY 140660 BY 40200
007146  170200                  STFPS   FPS             ;STORE FLOATING POINT STATUS
007150  022700  047610          CMP     #47610,FPS      ;CHECK FLOATING POINT STATUS
007154  001401                  BEQ     .+4             ;BRANCH IF OK
007156  104000                  HLT                     ;FPS NOT EQUAL TO 47610

007160  174067  171616          STD     0,ANS1          ;STORE FRACTIONAL PART
007164  174167  171622          STD     0!1,ANS5        ;STORE INTERGER PART
007170  000410                  BR      037

007172  140660  000000  000000  N37:    140660,0,0,0
007200  000000
007202  040200  000000  000000  M37:    40200,0,0,0
007210  000000
007212  022767  140000  171562  037:    CMP     #140000,ANS1    ;CHECK FIRST WORD OF FRACTION
007220  001401                  BEQ     .+4
007222  104010                  HLT+8.                  ;FIRST # 140000

007224  022767  000000  171552          CMP     #0,ANS2         ;CHECK SECOND WORD
007232  001401                  BEQ     .+4
007234  104010                  HLT+8.                  ;SECOND # 0

007236  022767  000000  171542          CMP     #0,ANS3         ;CHECK THIRD WORD
007244  001401                  BEQ     .+4
007246  104010                  HLT+8.                  ;THIRD # 0

007250  022767  000000  171532          CMP     #0,ANS4         ;CHECK FORTH
007256  001401                  BEQ     .+4
007260  104010                  HLT+8.                  ;FORTH # 0

007262  022767  140640  171522          CMP     #140640,ANS5    ;CHECK FIRST WORD OF INTEGER
007270  001401                  BEQ     .+4
007272  104010                  HLT+8.                  ;FIRST # 140640

007274  022767  000000  171512          CMP     #0,ANS6         ;CHECK SECOND WORD
007302  001401                  BEQ     .+4
007304  104010                  HLT+8.                  ;SECOND # 0

007306  022767  000000  171502          CMP     #0,ANS7         ;CHECK THIRD WORD
007314  001401                  BEQ     .+4
007316  104010                  HLT+8.                  ;THIRD # 0

007320  022767  000000  171472          CMP     #0,ANS8         ;CHECK FORTH WORD
007326  001401                  BEQ     .+4
007330  104010                  HLT+8.                  ;FORTH # 0
```

```
                        ;*****************************************************************
                        ;TEST 40                TEST OF MODD FPU INSTRUCTION
                        ;       52525 52525 52525 52525 * 40200 0 0 0 =
                        ;       52525 52525 52525 40000 & 37652 124000 0 0
                        ;       USING AC0       FPS = 47600     FEC = N/A
                        ;*****************************************************************
007332  104400                    SCOPE
007334  170127  047600            LDFPS   #47600&57760
007340  172467  000030            LDD     N40,0           ;LOAD 52525 INTO AC0
007344  171467  000034            MODD    M40,0           ;MODIFY 52525 BY 40200
007350  170200                    STFPS   FPS             ;STORE FLOATING POINT STATUS
007352  022700  047600            CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
007356  001401                    BEQ     .+4             ;BRANCH IF OK
007360  104000                    HLT                     ;FPS NOT EQUAL TO 47600

007362  174067  171414            STD     0,ANS1          ;STORE FRACTIONAL PART
007366  174167  171420            STD     0!1,ANS5        ;STORE INTERGER PART
007372  000410                    BR      040

007374  052525  052525  052525  N40:    52525,52525,52525,52525
007402  052525
007404  040200  000000  000000  M40:    40200,0,0,0
007412  000000
007414  022767  037652  171360  040:    CMP     #37652,ANS1     ;CHECK FIRST WORD OF FRACTION
007422  001401                    BEQ     .+4
007424  104010                    HLT+8.                  ;FIRST # 37652

007426  022767  124000  171350            CMP     #124000,ANS2    ;CHECK SECOND WORD
007434  001401                    BEQ     .+4
007436  104010                    HLT+8.                  ;SECOND # 124000

007440  022767  000000  171340            CMP     #0,ANS3         ;CHECK THIRD WORD
007446  001401                    BEQ     .+4
007450  104010                    HLT+8.                  ;THIRD # 0

007452  022767  000000  171330            CMP     #0,ANS4         ;CHECK FORTH
007460  001401                    BEQ     .+4
007462  104010                    HLT+8.                  ;FORTH # 0

007464  022767  052525  171320            CMP     #52525,ANS5     ;CHECK FIRST WORD OF INTEGER
007472  001401                    BEQ     .+4
007474  104010                    HLT+8.                  ;FIRST # 52525

007476  022767  052525  171310            CMP     #52525,ANS6     ;CHECK SECOND WORD
007504  001401                    BEQ     .+4
007506  104010                    HLT+8.                  ;SECOND # 52525

007510  022767  052525  171300            CMP     #52525,ANS7     ;CHECK THIRD WORD
007516  001401                    BEQ     .+4
007520  104010                    HLT+8.                  ;THIRD # 52525

007522  022767  040000  171270            CMP     #40000,ANS8     ;CHECK FORTH WORD
007530  001401                    BEQ     .+4
007532  104010                    HLT+8.                  ;FORTH # 40000
```

```
                                ;*************************************************************************
                                ;TEST 41                TEST OF MODD FPU INSTRUCTION
                                ;       125252 125252 125252 125252 * 40200 0 0 0 =
                                ;       0 0 0 0 & 125252 125252 125252 125252
                                ;       USING AC0       FPS = 47610     FEC = N/A
                                ;*************************************************************************
007534  104400                          SCOPE
007536  170127  047600                  LDFPS   #47610&57760
007542  172467  000030                  LDD     N41,0           ;LOAD 125252 INTO AC0
007546  171467  000034                  MODD    M41,0           ;MODIFY 125252 BY 40200
007552  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
007554  022700  047610                  CMP     #47610,FPS      ;CHECK FLOATING POINT STATUS
007560  001401                          BEQ     .+4             ;BRANCH IF OK
007562  104000                          HLT                     ;FPS NOT EQUAL TO 47610

007564  174067  171212                  STD     0,ANS1          ;STORE FRACTIONAL PART
007570  174167  171216                  STD     0!1,ANS5        ;STORE INTERGER PART
007574  000410                          BR      041

007576  125252  125252  125252  N41:    125252,125252,125252,125252
007604  125252
007606  040200  000000  000000  M41:    40200,0,0,0
007614  000000
007616  022767  125252  171156  041:    CMP     #125252,ANS1    ;CHECK FIRST WORD OF FRACTION
007624  001401                          BEQ     .+4
007626  104010                          HLT+8.                  ;FIRST # 125252

007630  022767  125252  171146          CMP     #125252,ANS2    ;CHECK SECOND WORD
007636  001401                          BEQ     .+4
007640  104010                          HLT+8.                  ;SECOND # 125252

007642  022767  125252  171136          CMP     #125252,ANS3    ;CHECK THIRD WORD
007650  001401                          BEQ     .+4
007652  104010                          HLT+8.                  ;THIRD # 125252

007654  022767  125252  171126          CMP     #125252,ANS4    ;CHECK FORTH
007662  001401                          BEQ     .+4
007664  104010                          HLT+8.                  ;FORTH # 125252

007666  022767  000000  171116          CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
007674  001401                          BEQ     .+4
007676  104010                          HLT+8.                  ;FIRST # 0

007700  022767  000000  171106          CMP     #0,ANS6         ;CHECK SECOND WORD
007706  001401                          BEQ     .+4
007710  104010                          HLT+8.                  ;SECOND # 0

007712  022767  000000  171076          CMP     #0,ANS7         ;CHECK THIRD WORD
007720  001401                          BEQ     .+4
007722  104010                          HLT+8.                  ;THIRD # 0

007724  022767  000000  171066          CMP     #0,ANS8         ;CHECK FORTH WORD
007732  001401                          BEQ     .+4
007734  104010                          HLT+8.                  ;FORTH # 0
```

```
                        ;*****************************************************************
                        ;TEST 42                TEST OF MODD FPU INSTRUCTION
                        ;       0 0 0 0 * 0 0 0 0 =
                        ;       0 0 0 0 & 0 0 0 0
                        ;       USING AC2       FPS = 47604     FEC = N/A
                        ;*****************************************************************
007736  104400                    SCOPE
007740  170127  047600            LDFPS   #47604&57760
007744  172667  000030            LDD     N42,2           ;LOAD 0 INTO AC2
007750  171667  000034            MODD    M42,2           ;MODIFY 0 BY 0
007754  170200                    STFPS   FPS             ;STORE FLOATING POINT STATUS
007756  022700  047604            CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
007762  001401                    BEQ     .+4             ;BRANCH IF OK
007764  104000                    HLT                     ;FPS NOT EQUAL TO 47604

007766  174267  171010            STD     2,ANS1          ;STORE FRACTIONAL PART
007772  174367  171014            STD     2!1,ANS5        ;STORE INTERGER PART
007776  000410                    BR      042

010000  000000  000000  000000  N42:     0.0,0.0
010006  000000
010010  000000  000000  000000  M42:     0.0,0.0
010016  000000
010020  022767  000000  170754  042:     CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
010026  001401                    BEQ     .+4
010030  104010                    HLT+8.                  ;FIRST # 0

010032  022767  000000  170744            CMP     #0,ANS2         ;CHECK SECOND WORD
010040  001401                    BEQ     .+4
010042  104010                    HLT+8.                  ;SECOND # 0

010044  022767  000000  170734            CMP     #0,ANS3         ;CHECK THIRD WORD
010052  001401                    BEQ     .+4
010054  104010                    HLT+8.                  ;THIRD # 0

010056  022767  000000  170724            CMP     #0,ANS4         ;CHECK FORTH
010064  001401                    BEQ     .+4
010066  104010                    HLT+8.                  ;FORTH # 0

010070  022767  000000  170714            CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
010076  001401                    BEQ     .+4
010100  104010                    HLT+8.                  ;FIRST # 0

010102  022767  000000  170704            CMP     #0,ANS6         ;CHECK SECOND WORD
010110  001401                    BEQ     .+4
010112  104010                    HLT+8.                  ;SECOND # 0

010114  022767  000000  170674            CMP     #0,ANS7         ;CHECK THIRD WORD
010122  001401                    BEQ     .+4
010124  104010                    HLT+8.                  ;THIRD # 0

010126  022767  000000  170664            CMP     #0,ANS8         ;CHECK FORTH WORD
010134  001401                    BEQ     .+4
010136  104010                    HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************************
                                ;TEST 43                    TEST OF MODD FPU INSTRUCTION
                                ;       0 0 0 0 * 40200 0 0 0 =
                                ;       0 0 0 0 & 0 0 0 0
                                ;       USING AC2           FPS = 47604     FEC = N/A
                                ;*****************************************************************************
010140  104400                          SCOPE
010142  170127  047600                  LDFPS   #47604&57760
010146  172667  000030                  LDD     N43,2           ;LOAD 0 INTO AC2
010152  171667  000034                  MODD    M43,2           ;MODIFY 0 BY 40200
010156  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
010160  022700  047604                  CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
010164  001401                          BEQ     .+4             ;BRANCH IF OK
010166  104000                          HLT                     ;FPS NOT EQUAL TO 47604

010170  174267  170606                  STD     2,ANS1          ;STORE FRACTIONAL PART
010174  174367  170612                  STD     2!1,ANS5        ;STORE INTERGER PART
010200  000410                          BR      043

010202  000000  000000  000000  N43:    0.0.0.0
010210  000000
010212  040200  000000  000000  M43:    40200.0.0.0
010220  000000
010222  022767  000000  170552  043:    CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
010230  001401                          BEQ     .+4
010232  104010                          HLT+8.                  ;FIRST # 0

010234  022767  000000  170542          CMP     #0,ANS2         ;CHECK SECOND WORD
010242  001401                          BEQ     .+4
010244  104010                          HLT+8.                  ;SECOND # 0

010246  022767  000000  170532          CMP     #0,ANS3         ;CHECK THIRD WORD
010254  001401                          BEQ     .+4
010256  104010                          HLT+8.                  ;THIRD # 0

010260  022767  000000  170522          CMP     #0,ANS4         ;CHECK FORTH
010266  001401                          BEQ     .+4
010270  104010                          HLT+8.                  ;FORTH # 0

010272  022767  000000  170512          CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
010300  001401                          BEQ     .+4
010302  104010                          HLT+8.                  ;FIRST # 0

010304  022767  000000  170502          CMP     #0,ANS6         ;CHECK SECOND WORD
010312  001401                          BEQ     .+4
010314  104010                          HLT+8.                  ;SECOND # 0

010316  022767  000000  170472          CMP     #0,ANS7         ;CHECK THIRD WORD
010324  001401                          BEQ     .+4
010326  104010                          HLT+8.                  ;THIRD # 0

010330  022767  000000  170462          CMP     #0,ANS8         ;CHECK FORTH WORD
010336  001401                          BEQ     .+4
010340  104010                          HLT+8.                  ;FORTH # 0
```

```
                                ;*************************************************************************
                                ;TEST 44                    TEST OF MODD FPU INSTRUCTION
                                ;       40200 0 0 0 * 0 0 0 0 =
                                ;       0 0 0 0 & 0 0 0 0
                                ;       USING AC2           FPS = 47604     FEC = N/A
                                ;*************************************************************************
010342  104400                          SCOPE
010344  170127  047600                  LDFPS   #47604&57760
010350  172667  000030                  LDD     N44,2           ;LOAD 40200 INTO AC2
010354  171667  000034                  MODD    M44,2           ;MODIFY 40200 BY 0
010360  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
010362  022700  047604                  CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
010366  001401                          BEQ     .+4             ;BRANCH IF OK
010370  104000                          HLT                     ;FPS NOT EQUAL TO 47604

010372  174267  170404                  STD     2,ANS1          ;STORE FRACTIONAL PART
010376  174367  170410                  STD     2!1,ANS5        ;STORE INTERGER PART
010402  000410                          BR      044

010404  040200  000000  000000  N44:    40200,0,0,0
010412  000000
010414  000000  000000  000000  M44:    0,0,0,0
010422  000000
010424  022767  000000  170350  044:    CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
010432  001401                          BEQ     .+4
010434  104010                          HLT+8.                  ;FIRST # 0

010436  022767  000000  170340          CMP     #0,ANS2         ;CHECK SECOND WORD
010444  001401                          BEQ     .+4
010446  104010                          HLT+8.                  ;SECOND # 0

010450  022767  000000  170330          CMP     #0,ANS3         ;CHECK THIRD WORD
010456  001401                          BEQ     .+4
010460  104010                          HLT+8.                  ;THIRD # 0

010462  022767  000000  170320          CMP     #0,ANS4         ;CHECK FORTH
010470  001401                          BEQ     .+4
010472  104010                          HLT+8.                  ;FORTH # 0

010474  022767  000000  170310          CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
010502  001401                          BEQ     .+4
010504  104010                          HLT+8.                  ;FIRST # 0

010506  022767  000000  170300          CMP     #0,ANS6         ;CHECK SECOND WORD
010514  001401                          BEQ     .+4
010516  104010                          HLT+8.                  ;SECOND # 0

010520  022767  000000  170270          CMP     #0,ANS7         ;CHECK THIRD WORD
010526  001401                          BEQ     .+4
010530  104010                          HLT+8.                  ;THIRD # 0

010532  022767  000000  170260          CMP     #0,ANS8         ;CHECK FORTH WORD
010540  001401                          BEQ     .+4
010542  104010                          HLT+8.                  ;FORTH # 0
```

```
                        ;*****************************************************************
                        ;TEST 45                TEST OF MODD FPU INSTRUCTION
                        ;       40200 0 0 0 * 40200 0 0 0 =
                        ;       40200 0 0 0 & 0 0 0 0
                        ;       USING AC2       FPS = 47604     FEC = N/A
                        ;*****************************************************************
010544  104400                  SCOPE
010546  170127  047600          LDFPS   #47604&57760
010552  172667  000030          LDD     N45,2           ;LOAD 40200 INTO AC2
010556  171667  000034          MODD    M45,2           ;MODIFY 40200 BY 40200
010562  170200                  STFPS   FPS             ;STORE FLOATING POINT STATUS
010564  022700  047604          CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
010570  001401                  BEQ     .+4             ;BRANCH IF OK
010572  104000                  HLT                     ;FPS NOT EQUAL TO 47604

010574  174267  170202          STD     2,ANS1          ;STORE FRACTIONAL PART
010600  174367  170206          STD     2!1,ANS5        ;STORE INTERGER PART
010604  000410                  BR      045

010606  040200  000000  000000  N45:    40200,0,0,0
010614  000000
010616  040200  000000  000000  M45:    40200,0,0,0
010624  000000
010626  022767  000000  170146  045:    CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
010634  001401                  BEQ     .+4
010636  104010                  HLT+8.                  ;FIRST # 0

010640  022767  000000  170136          CMP     #0,ANS2         ;CHECK SECOND WORD
010646  001401                  BEQ     .+4
010650  104010                  HLT+8.                  ;SECOND # 0

010652  022767  000000  170126          CMP     #0,ANS3         ;CHECK THIRD WORD
010660  001401                  BEQ     .+4
010662  104010                  HLT+8.                  ;THIRD # 0

010664  022767  000000  170116          CMP     #0,ANS4         ;CHECK FORTH
010672  001401                  BEQ     .+4
010674  104010                  HLT+8.                  ;FORTH # 0

010676  022767  040200  170106          CMP     #40200,ANS5     ;CHECK FIRST WORD OF INTEGER
010704  001401                  BEQ     .+4
010706  104010                  HLT+8.                  ;FIRST # 40200

010710  022767  000000  170076          CMP     #0,ANS6         ;CHECK SECOND WORD
010716  001401                  BEQ     .+4
010720  104010                  HLT+8.                  ;SECOND # 0

010722  022767  000000  170066          CMP     #0,ANS7         ;CHECK THIRD WORD
010730  001401                  BEQ     .+4
010732  104010                  HLT+8.                  ;THIRD # 0

010734  022767  000000  170056          CMP     #0,ANS8         ;CHECK FORTH WORD
010742  001401                  BEQ     .+4
010744  104010                  HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 46                TEST OF MODD FPU INSTRUCTION
                                ;       40214 146314 146314 146315 * 40200 0 0 0 =
                                ;       40200 0 0 0 & 37314 146314 146314 146320
                                ;       USING AC2       FPS = 47600     FEC = N/A
                                ;*****************************************************************
010746  104400                          SCOPE
010750  170127  047600                  LDFPS   #47600&57760
010754  172667  000030                  LDD     N46,2           ;LOAD 40214 INTO AC2
010760  171667  000034                  MODD    M46,2           ;MODIFY 40214 BY 40200
010764  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
010766  022700  047600                  CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
010772  001401                          BEQ     .+4             ;BRANCH IF OK
010774  104000                          HLT                     ;FPS NOT EQUAL TO 47600

010776  174267  170000                  STD     2,ANS1          ;STORE FRACTIONAL PART
011002  174367  170004                  STD     2!1,ANS5        ;STORE INTERGER PART
011006  000410                          BR      046

011010  040214  146314  146314  N46:    40214,146314,146314,146315
011016  146315
011020  040200  000000  000000  M46:    40200,0,0,0
011026  000000
011030  022767  037314  167744  046:    CMP     #37314,ANS1     ;CHECK FIRST WORD OF FRACTION
011036  001401                          BEQ     .+4
011040  104010                          HLT+8.                  ;FIRST # 37314

011042  022767  146314  167734          CMP     #146314,ANS2    ;CHECK SECOND WORD
011050  001401                          BEQ     .+4
011052  104010                          HLT+8.                  ;SECOND # 146314

011054  022767  146314  167724          CMP     #146314,ANS3    ;CHECK THIRD WORD
011062  001401                          BEQ     .+4
011064  104010                          HLT+8.                  ;THIRD # 146314

011066  022767  146320  167714          CMP     #146320,ANS4    ;CHECK FORTH
011074  001401                          BEQ     .+4
011076  104010                          HLT+8.                  ;FORTH # 146320

011100  022767  040200  167704          CMP     #40200,ANS5     ;CHECK FIRST WORD OF INTEGER
011106  001401                          BEQ     .+4
011110  104010                          HLT+8.                  ;FIRST # 40200

011112  022767  000000  167674          CMP     #0,ANS6         ;CHECK SECOND WORD
011120  001401                          BEQ     .+4
011122  104010                          HLT+8.                  ;SECOND # 0

011124  022767  000000  167664          CMP     #0,ANS7         ;CHECK THIRD WORD
011132  001401                          BEQ     .+4
011134  104010                          HLT+8.                  ;THIRD # 0

011136  022767  000000  167654          CMP     #0,ANS8         ;CHECK FORTH WORD
011144  001401                          BEQ     .+4
011146  104010                          HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 47                TEST OF MODD FPU INSTRUCTION
                                ;       40414 146314 146314 146315 * 40200 0 0 0 =
                                ;       40400 0 0 0 & 37514 146314 146314 146320
                                ;       USING AC2       FPS = 47600     FEC = N/A
                                ;*****************************************************************
011150  104400                          SCOPE
011152  170127  047600                  LDFPS   #47600&57760
011156  172667  000030                  LDD     N47,2           ;LOAD 40414 INTO AC2
011162  171667  000034                  MODD    M47,2           ;MODIFY 40414 BY 40200
011166  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
011170  022700  047600                  CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
011174  001401                          BEQ     .+4             ;BRANCH IF OK
011176  104000                          HLT                     ;FPS NOT EQUAL TO 47600

011200  174267  167576                  STD     2,ANS1          ;STORE FRACTIONAL PART
011204  174367  167602                  STD     2!1,ANS5        ;STORE INTERGER PART
011210  000410                          BR      047

011212  040414  146314  146314  N47:    40414,146314,146314,146315
011220  146315
011222  040200  000000  000000  M47:    40200,0,0,0
011230  000000
011232  022767  037514  167542  047:    CMP     #37514,ANS1     ;CHECK FIRST WORD OF FRACTION
011240  001401                          BEQ     .+4
011242  104010                          HLT+8.                  ;FIRST # 37514

011244  022767  146314  167532          CMP     #146314,ANS2    ;CHECK SECOND WORD
011252  001401                          BEQ     .+4
011254  104010                          HLT+8.                  ;SECOND # 146314

011256  022767  146314  167522          CMP     #146314,ANS3    ;CHECK THIRD WORD
011264  001401                          BEQ     .+4
011266  104010                          HLT+8.                  ;THIRD # 146314

011270  022767  146320  167512          CMP     #146320,ANS4    ;CHECK FORTH
011276  001401                          BEQ     .+4
011300  104010                          HLT+8.                  ;FORTH # 146320

011302  022767  040400  167502          CMP     #40400,ANS5     ;CHECK FIRST WORD OF INTEGER
011310  001401                          BEQ     .+4
011312  104010                          HLT+8.                  ;FIRST # 40400

011314  022767  000000  167472          CMP     #0,ANS6         ;CHECK SECOND WORD
011322  001401                          BEQ     .+4
011324  104010                          HLT+8.                  ;SECOND # 0

011326  022767  000000  167462          CMP     #0,ANS7         ;CHECK THIRD WORD
011334  001401                          BEQ     .+4
011336  104010                          HLT+8.                  ;THIRD # 0

011340  022767  000000  167452          CMP     #0,ANS8         ;CHECK FORTH WORD
011346  001401                          BEQ     .+4
011350  104010                          HLT+8.                  ;FORTH # 0
```

```
                        ;*************************************************************************
                        ;TEST 50                TEST OF MODD FPU INSTRUCTION
                        ;       40523 31463 31463 31463 * 40200 0 0 0 =
                        ;       40500 0 0 0 & 37631 114631 114631 114630
                        ;       USING AC2       FPS = 47600     FEC = N/A
                        ;*************************************************************************
011352  104400                    SCOPE
011354  170127  047600            LDFPS   #47600&57760
011360  172667  000030            LDD     N50,2           ;LOAD 40523 INTO AC2
011364  171667  000034            MODD    M50,2           ;MODIFY 40523 BY 40200
011370  170200                    STFPS   FPS             ;STORE FLOATING POINT STATUS
011372  022700  047600            CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
011376  001401                    BEQ     .+4             ;BRANCH IF OK
011400  104000                    HLT                     ;FPS NOT EQUAL TO 47600

011402  174267  167374            STD     2,ANS1          ;STORE FRACTIONAL PART
011406  174367  167400            STD     2!1,ANS5        ;STORE INTERGER PART
011412  000410                    BR      050

011414  040523  031463  031463  N50:    40523,31463,31463,31463
011422  031463
011424  040200  000000  000000  M50:    40200,0,0,0
011432  000000
011434  022767  037631  167340  050:    CMP     #37631,ANS1     ;CHECK FIRST WORD OF FRACTION
011442  001401                    BEQ     .+4
011444  104010                    HLT+8.                  ;FIRST # 37631

011446  022767  114631  167330            CMP     #114631,ANS2    ;CHECK SECOND WORD
011454  001401                    BEQ     .+4
011456  104010                    HLT+8.                  ;SECOND # 114631

011460  022767  114631  167320            CMP     #114631,ANS3    ;CHECK THIRD WORD
011466  001401                    BEQ     .+4
011470  104010                    HLT+8.                  ;THIRD # 114631

011472  022767  114630  167310            CMP     #114630,ANS4    ;CHECK FORTH
011500  001401                    BEQ     .+4
011502  104010                    HLT+8.                  ;FORTH # 114630

011504  022767  040500  167300            CMP     #40500,ANS5     ;CHECK FIRST WORD OF INTEGER
011512  001401                    BEQ     .+4
011514  104010                    HLT+8.                  ;FIRST # 40500

011516  022767  000000  167270            CMP     #0,ANS6         ;CHECK SECOND WORD
011524  001401                    BEQ     .+4
011526  104010                    HLT+8.                  ;SECOND # 0

011530  022767  000000  167260            CMP     #0,ANS7         ;CHECK THIRD WORD
011536  001401                    BEQ     .+4
011540  104010                    HLT+8.                  ;THIRD # 0

011542  022767  000000  167250            CMP     #0,ANS8         ;CHECK FORTH WORD
011550  001401                    BEQ     .+4
011552  104010                    HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 51                TEST OF MODD FPU INSTRUCTION
                                ;       40660 0 0 0 * 40200 0 0 0 =
                                ;       40640 0 0 0 & 40000 0 0 0
                                ;       USING AC2       FPS = 47600     FEC = N/A
                                ;*****************************************************************
011554  104400                          SCOPE
011556  170127  047600                  LDFPS   #47600&57760
011562  172667  000030                  LDD     N51,2           ;LOAD 40660 INTO AC2
011566  171667  000034                  MODD    M51,2           ;MODIFY 40660 BY 40200
011572  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
011574  022700  047600                  CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
011600  001401                          BEQ     .+4             ;BRANCH IF OK
011602  104000                          HLT                     ;FPS NOT EQUAL TO 47600

011604  174267  167172                  STD     2,ANS1          ;STORE FRACTIONAL PART
011610  174367  167176                  STD     2!1,ANS5        ;STORE INTERGER PART
011614  000410                          BR      051

011616  040660  000000  000000  N51:    40660,0,0,0
011624  000000
011626  040200  000000  000000  M51:    40200,0,0,0
011634  000000
011636  022767  040000  167136  051:    CMP     #40000,ANS1     ;CHECK FIRST WORD OF FRACTION
011644  001401                          BEQ     .+4
011646  104010                          HLT+8.                  ;FIRST # 40000

011650  022767  000000  167126          CMP     #0,ANS2         ;CHECK SECOND WORD
011656  001401                          BEQ     .+4
011660  104010                          HLT+8.                  ;SECOND # 0

011662  022767  000000  167116          CMP     #0,ANS3         ;CHECK THIRD WORD
011670  001401                          BEQ     .+4
011672  104010                          HLT+8.                  ;THIRD # 0

011674  022767  000000  167106          CMP     #0,ANS4         ;CHECK FORTH
011702  001401                          BEQ     .+4
011704  104010                          HLT+8.                  ;FORTH # 0

011706  022767  040640  167076          CMP     #40640,ANS5     ;CHECK FIRST WORD OF INTEGER
011714  001401                          BEQ     .+4
011716  104010                          HLT+8.                  ;FIRST # 40640

011720  022767  000000  167066          CMP     #0,ANS6         ;CHECK SECOND WORD
011726  001401                          BEQ     .+4
011730  104010                          HLT+8.                  ;SECOND # 0

011732  022767  000000  167056          CMP     #0,ANS7         ;CHECK THIRD WORD
011740  001401                          BEQ     .+4
011742  104010                          HLT+8.                  ;THIRD # 0

011744  022767  000000  167046          CMP     #0,ANS8         ;CHECK FORTH WORD
011752  001401                          BEQ     .+4
011754  104010                          HLT+8.                  ;FORTH # 0
```

```
                        ;*****************************************************************
                        ;TEST 52                TEST OF MODD FPU INSTRUCTION
                        ;       140200 0 0 0 * 40200 0 0 0 =
                        ;       140200 0 0 0 & 0 0 0 0
                        ;       USING AC2       FPS = 47604     FEC = N/A
                        ;*****************************************************************
011756  104400                    SCOPE
011760  170127  047600            LDFPS   #47604&57760
011764  172667  000030            LDD     N52,2           ;LOAD 140200 INTO AC2
011770  171667  000034            MODD    M52,2           ;MODIFY 140200 BY 40200
011774  170200                    STFPS   FPS             ;STORE FLOATING POINT STATUS
011776  022700  047604            CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
012002  001401                    BEQ     .+4             ;BRANCH IF OK
012004  104000                    HLT                     ;FPS NOT EQUAL TO 47604

012006  174267  166770            STD     2,ANS1          ;STORE FRACTIONAL PART
012012  174367  166774            STD     2!1,ANS5        ;STORE INTERGER PART
012016  000410                    BR      052

012020  140200  000000  000000  N52:   140200,0,0,0
012026  000000
012030  040200  000000  000000  M52:   40200,0,0,0
012036  000000
012040  022767  000000  166734  052:   CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
012046  001401                    BEQ     .+4
012050  104010                    HLT+8.                  ;FIRST # 0

012052  022767  000000  166724        CMP     #0,ANS2         ;CHECK SECOND WORD
012060  001401                    BEQ     .+4
012062  104010                    HLT+8.                  ;SECOND # 0

012064  022767  000000  166714        CMP     #0,ANS3         ;CHECK THIRD WORD
012072  001401                    BEQ     .+4
012074  104010                    HLT+8.                  ;THIRD # 0

012076  022767  000000  166704        CMP     #0,ANS4         ;CHECK FORTH
012104  001401                    BEQ     .+4
012106  104010                    HLT+8.                  ;FORTH # 0

012110  022767  140200  166674        CMP     #140200,ANS5    ;CHECK FIRST WORD OF INTEGER
012116  001401                    BEQ     .+4
012120  104010                    HLT+8.                  ;FIRST # 140200

012122  022767  000000  166664        CMP     #0,ANS6         ;CHECK SECOND WORD
012130  001401                    BEQ     .+4
012132  104010                    HLT+8.                  ;SECOND # 0

012134  022767  000000  166654        CMP     #0,ANS7         ;CHECK THIRD WORD
012142  001401                    BEQ     .+4
012144  104010                    HLT+8.                  ;THIRD # 0

012146  022767  000000  166644        CMP     #0,ANS8         ;CHECK FORTH WORD
012154  001401                    BEQ     .+4
012156  104010                    HLT+8.                  ;FORTH # 0
```

```
                        ;*****************************************************************
                        ;TEST 53                TEST OF MODD FPU INSTRUCTION
                        ;       140214 146314 146314 146315 * 40200 0 0 0 =
                        ;       140200 0 0 0 & 137314 146314 146314 146320
                        ;       USING AC2       FPS = 47610     FEC = N/A
                        ;*****************************************************************
012160  104400                  SCOPE
012162  170127  047600          LDFPS   #47610&57760
012166  172667  000030          LDD     N53,2           ;LOAD 140214 INTO AC2
012172  171667  000034          MODD    M53,2           ;MODIFY 140214 BY 40200
012176  170200                  STFPS   FPS             ;STORE FLOATING POINT STATUS
012200  022700  047610          CMP     #47610,FPS      ;CHECK FLOATING POINT STATUS
012204  001401                  BEQ     .+4             ;BRANCH IF OK
012206  104000                  HLT                     ;FPS NOT EQUAL TO 47610

012210  174267  166566          STD     2,ANS1          ;STORE FRACTIONAL PART
012214  174367  166572          STD     2!1,ANS5        ;STORE INTERGER PART
012220  000410                  BR      053

012222  140214  146314  146314  N53:    140214,146314,146314,146315
012230  146315
012232  040200  000000  000000  M53:    40200,0,0,0
012240  000000
012242  022767  137314  166532  053:    CMP     #137314,ANS1    ;CHECK FIRST WORD OF FRACTION
012250  001401                  BEQ     .+4
012252  104010                  HLT+8.                  ;FIRST # 137314

012254  022767  146314  166522          CMP     #146314,ANS2    ;CHECK SECOND WORD
012262  001401                  BEQ     .+4
012264  104010                  HLT+8.                  ;SECOND # 146314

012266  022767  146314  166512          CMP     #146314,ANS3    ;CHECK THIRD WORD
012274  001401                  BEQ     .+4
012276  104010                  HLT+8.                  ;THIRD # 146314

012300  022767  146320  166502          CMP     #146320,ANS4    ;CHECK FORTH
012306  001401                  BEQ     .+4
012310  104010                  HLT+8.                  ;FORTH # 146320

012312  022767  140200  166472          CMP     #140200,ANS5    ;CHECK FIRST WORD OF INTEGER
012320  001401                  BEQ     .+4
012322  104010                  HLT+8.                  ;FIRST # 140200

012324  022767  000000  166462          CMP     #0,ANS6         ;CHECK SECOND WORD
012332  001401                  BEQ     .+4
012334  104010                  HLT+8.                  ;SECOND # 0

012336  022767  000000  166452          CMP     #0,ANS7         ;CHECK THIRD WORD
012344  001401                  BEQ     .+4
012346  104010                  HLT+8.                  ;THIRD # 0

012350  022767  000000  166442          CMP     #0,ANS8         ;CHECK FORTH WORD
012356  001401                  BEQ     .+4
012360  104010                  HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************************
                                ;TEST 54                    TEST OF MODD FPU INSTRUCTION
                                ;       140414 146314 146314 146315 * 40200 0 0 0 =
                                ;       140400 0 0 0 & 137514 146314 146314 146320
                                ;       USING AC2       FPS = 47610     FEC = N/A
                                ;*****************************************************************************
012362  104400                          SCOPE
012364  170127  047600                  LDFPS   #47610&57760
012370  172667  000030                  LDD     N54,2           ;LOAD 140414 INTO AC2
012374  171667  000034                  MODD    M54,2           ;MODIFY 140414 BY 40200
012400  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
012402  022700  047610                  CMP     #47610,FPS      ;CHECK FLOATING POINT STATUS
012406  001401                          BEQ     .+4             ;BRANCH IF OK
012410  104000                          HLT                     ;FPS NOT EQUAL TO 47610

012412  174267  166364                  STD     2,ANS1          ;STORE FRACTIONAL PART
012416  174367  166370                  STD     2!1,ANS5        ;STORE INTERGER PART
012422  000410                          BR      054

012424  140414  146314  146314  N54:    140414,146314,146314,146315
012432  146315
012434  040200  000000  000000  M54:    40200,0,0,0
012442  000000
012444  022767  137514  166330  054:    CMP     #137514,ANS1    ;CHECK FIRST WORD OF FRACTION
012452  001401                          BEQ     .+4
012454  104010                          HLT+8.                  ;FIRST # 137514

012456  022767  146314  166320          CMP     #146314,ANS2    ;CHECK SECOND WORD
012464  001401                          BEQ     .+4
012466  104010                          HLT+8.                  ;SECOND # 146314

012470  022767  146314  166310          CMP     #146314,ANS3    ;CHECK THIRD WORD
012476  001401                          BEQ     .+4
012500  104010                          HLT+8.                  ;THIRD # 146314

012502  022767  146320  166300          CMP     #146320,ANS4    ;CHECK FORTH
012510  001401                          BEQ     .+4
012512  104010                          HLT+8.                  ;FORTH # 146320

012514  022767  140400  166270          CMP     #140400,ANS5    ;CHECK FIRST WORD OF INTEGER
012522  001401                          BEQ     .+4
012524  104010                          HLT+8.                  ;FIRST # 140400

012526  022767  000000  166260          CMP     #0,ANS6         ;CHECK SECOND WORD
012534  001401                          BEQ     .+4
012536  104010                          HLT+8.                  ;SECOND # 0

012540  022767  000000  166250          CMP     #0,ANS7         ;CHECK THIRD WORD
012546  001401                          BEQ     .+4
012550  104010                          HLT+8.                  ;THIRD # 0

012552  022767  000000  166240          CMP     #0,ANS8         ;CHECK FORTH WORD
012560  001401                          BEQ     .+4
012562  104010                          HLT+8.                  ;FORTH # 0
```

```
                                        ;*****************************************************************
                                        ;TEST 55                TEST OF MODD FPU INSTRUCTION
                                        ;       140523 31463 31463 31463 * 40200 0 0 0 =
                                        ;       140500 0 0 0 & 137631 114631 114631 114630
                                        ;       USING AC2       FPS = 47610     FEC = N/A
                                        ;*****************************************************************
012564  104400                                  SCOPE
012566  170127  047600                          LDFPS   #47610&57760
012572  172667  000030                          LDD     N55,2           ;LOAD 140523 INTO AC2
012576  171667  000034                          MODD    M55,2           ;MODIFY 140523 BY 40200
012602  170200                                  STFPS   FPS             ;STORE FLOATING POINT STATUS
012604  022700  047610                          CMP     #47610,FPS      ;CHECK FLOATING POINT STATUS
012610  001401                                  BEQ     .+4             ;BRANCH IF OK
012612  104000                                  HLT                     ;FPS NOT EQUAL TO 47610

012614  174267  166162                          STD     2,ANS1          ;STORE FRACTIONAL PART
012620  174367  166166                          STD     2!1,ANS5        ;STORE INTERGER PART
012624  000410                                  BR      055

012626  140523  031463  031463  N55:    140523,31463,31463,31463
012634  031463
012636  040200  000000  000000  M55:    40200,0,0,0
012644  000000
012646  022767  137631  166126  055:    CMP     #137631,ANS1    ;CHECK FIRST WORD OF FRACTION
012654  001401                          BEQ     .+4
012656  104010                          HLT+8.                  ;FIRST # 137631

012660  022767  114631  166116          CMP     #114631,ANS2    ;CHECK SECOND WORD
012666  001401                          BEQ     .+4
012670  104010                          HLT+8.                  ;SECOND # 114631

012672  022767  114631  166106          CMP     #114631,ANS3    ;CHECK THIRD WORD
012700  001401                          BEQ     .+4
012702  104010                          HLT+8.                  ;THIRD # 114631

012704  022767  114630  166076          CMP     #114630,ANS4    ;CHECK FORTH
012712  001401                          BEQ     .+4
012714  104010                          HLT+8.                  ;FORTH # 114630

012716  022767  140500  166066          CMP     #140500,ANS5    ;CHECK FIRST WORD OF INTEGER
012724  001401                          BEQ     .+4
012726  104010                          HLT+8.                  ;FIRST # 140500

012730  022767  000000  166056          CMP     #0,ANS6         ;CHECK SECOND WORD
012736  001401                          BEQ     .+4
012740  104010                          HLT+8.                  ;SECOND # 0

012742  022767  000000  166046          CMP     #0,ANS7         ;CHECK THIRD WORD
012750  001401                          BEQ     .+4
012752  104010                          HLT+8.                  ;THIRD # 0

012754  022767  000000  166036          CMP     #0,ANS8         ;CHECK FORTH WORD
012762  001401                          BEQ     .+4
012764  104010                          HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 56                TEST OF MODD FPU INSTRUCTION
                                ;       140660 0 0 0 * 40200 0 0 0 =
                                ;       140640 0 0 0 & 140000 0 0 0
                                ;       USING AC2       FPS = 47610     FEC = N/A
                                ;*****************************************************************
012766  104400                          SCOPE
012770  170127  047600                  LDFPS   #47610&57760
012774  172667  000030                  LDD     N56,2           ;LOAD 140660 INTO AC2
013000  171667  000034                  MODD    M56,2           ;MODIFY 140660 BY 40200
013004  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
013006  022700  047610                  CMP     #47610,FPS      ;CHECK FLOATING POINT STATUS
013012  001401                          BEQ     .+4             ;BRANCH IF OK
013014  104000                          HLT                     ;FPS NOT EQUAL TO 47610

013016  174267  165760                  STD     2,ANS1          ;STORE FRACTIONAL PART
013022  174367  165764                  STD     2!1,ANS5        ;STORE INTERGER PART
013026  000410                          BR      056

013030  140660  000000  000000  N56:    140660,0,0,0
013036  000000
013040  040200  000000  000000  M56:    40200,0,0,0
013046  000000
013050  022767  140000  165724  056:    CMP     #140000,ANS1    ;CHECK FIRST WORD OF FRACTION
013056  001401                          BEQ     .+4
013060  104010                          HLT+8.                  ;FIRST # 140000

013062  022767  000000  165714          CMP     #0,ANS2         ;CHECK SECOND WORD
013070  001401                          BEQ     .+4
013072  104010                          HLT+8.                  ;SECOND # 0

013074  022767  000000  165704          CMP     #0,ANS3         ;CHECK THIRD WORD
013102  001401                          BEQ     .+4
013104  104010                          HLT+8.                  ;THIRD # 0

013106  022767  000000  165674          CMP     #0,ANS4         ;CHECK FORTH
013114  001401                          BEQ     .+4
013116  104010                          HLT+8.                  ;FORTH # 0

013120  022767  140640  165664          CMP     #140640,ANS5    ;CHECK FIRST WORD OF INTEGER
013126  001401                          BEQ     .+4
013130  104010                          HLT+8.                  ;FIRST # 140640

013132  022767  000000  165654          CMP     #0,ANS6         ;CHECK SECOND WORD
013140  001401                          BEQ     .+4
013142  104010                          HLT+8.                  ;SECOND # 0

013144  022767  000000  165644          CMP     #0,ANS7         ;CHECK THIRD WORD
013152  001401                          BEQ     .+4
013154  104010                          HLT+8.                  ;THIRD # 0

013156  022767  000000  165634          CMP     #0,ANS8         ;CHECK FORTH WORD
013164  001401                          BEQ     .+4
013166  104010                          HLT+8.                  ;FORTH # 0
```

```
                        ;*************************************************************************
                        ;TEST 57                TEST OF MODD FPU INSTRUCTION
                        ;       52525 52525 52525 52525 * 40200 0 0 0 =
                        ;       52525 52525 52525 40000 & 37652 124000 0 0
                        ;       USING AC2       FPS = 47600     FEC = N/A
                        ;*************************************************************************
013170  104400                  SCOPE
013172  170127  047600          LDFPS   #47600&57760
013176  172667  000030          LDD     N57,2           ;LOAD 52525 INTO AC2
013202  171667  000034          MODD    M57,2           ;MODIFY 52525 BY 40200
013206  170200                  STFPS   FPS             ;STORE FLOATING POINT STATUS
013210  022700  047600          CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
013214  001401                  BEQ     .+4             ;BRANCH IF OK
013216  104000                  HLT                     ;FPS NOT EQUAL TO 47600

013220  174267  165556          STD     2,ANS1          ;STORE FRACTIONAL PART
013224  174367  165562          STD     2!1,ANS5        ;STORE INTERGER PART
013230  000410                  BR      057

013232  052525  052525  052525  N57:    52525,52525,52525,52525
013240  052525
013242  040200  000000  000000  M57:    40200,0,0,0
013250  000000
013252  022767  037652  165522  057:    CMP     #37652,ANS1     ;CHECK FIRST WORD OF FRACTION
013260  001401                  BEQ     .+4
013262  104010                  HLT+8.                  ;FIRST # 37652

013264  022767  124000  165512          CMP     #124000,ANS2    ;CHECK SECOND WORD
013272  001401                  BEQ     .+4
013274  104010                  HLT+8.                  ;SECOND # 124000

013276  022767  000000  165502          CMP     #0,ANS3         ;CHECK THIRD WORD
013304  001401                  BEQ     .+4
013306  104010                  HLT+8.                  ;THIRD # 0

013310  022767  000000  165472          CMP     #0,ANS4         ;CHECK FORTH
013316  001401                  BEQ     .+4
013320  104010                  HLT+8.                  ;FORTH # 0

013322  022767  052525  165462          CMP     #52525,ANS5     ;CHECK FIRST WORD OF INTEGER
013330  001401                  BEQ     .+4
013332  104010                  HLT+8.                  ;FIRST # 52525

013334  022767  052525  165452          CMP     #52525,ANS6     ;CHECK SECOND WORD
013342  001401                  BEQ     .+4
013344  104010                  HLT+8.                  ;SECOND # 52525

013346  022767  052525  165442          CMP     #52525,ANS7     ;CHECK THIRD WORD
013354  001401                  BEQ     .+4
013356  104010                  HLT+8.                  ;THIRD # 52525

013360  022767  040000  165432          CMP     #40000,ANS8     ;CHECK FORTH WORD
013366  001401                  BEQ     .+4
013370  104010                  HLT+8.                  ;FORTH # 40000
```

```
                                ;*****************************************************************************
                                ;TEST 60                    TEST OF MODD FPU INSTRUCTION
                                ;       125252 125252 125252 125252 * 40200 0 0 0 =
                                ;       0 0 0 0 & 125252 125252 125252 125252
                                ;       USING AC2       FPS = 47610     FEC = N/A
                                ;*****************************************************************************
013372  104400                          SCOPE
013374  170127  047600                  LDFPS   #47610&57760
013400  172667  000030                  LDD     N60,2           ;LOAD 125252 INTO AC2
013404  171667  000034                  MODD    M60,2           ;MODIFY 125252 BY 40200
013410  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
013412  022700  047610                  CMP     #47610,FPS      ;CHECK FLOATING POINT STATUS
013416  001401                          BEQ     .+4             ;BRANCH IF OK
013420  104000                          HLT                     ;FPS NOT EQUAL TO 47610

013422  174267  165354                  STD     2,ANS1          ;STORE FRACTIONAL PART
013426  174367  165360                  STD     2!1,ANS5        ;STORE INTERGER PART
013432  000410                          BR      060

013434  125252  125252  125252  N60:    125252,125252,125252,125252
013442  125252
013444  040200  000000  000000  M60:    40200,0,0,0
013452  000000
013454  022767  125252  165320  060:    CMP     #125252,ANS1    ;CHECK FIRST WORD OF FRACTION
013462  001401                          BEQ     .+4
013464  104010                          HLT+8.                  ;FIRST # 125252

013466  022767  125252  165310          CMP     #125252,ANS2    ;CHECK SECOND WORD
013474  001401                          BEQ     .+4
013476  104010                          HLT+8.                  ;SECOND # 125252

013500  022767  125252  165300          CMP     #125252,ANS3    ;CHECK THIRD WORD
013506  001401                          BEQ     .+4
013510  104010                          HLT+8.                  ;THIRD # 125252

013512  022767  125252  165270          CMP     #125252,ANS4    ;CHECK FORTH
013520  001401                          BEQ     .+4
013522  104010                          HLT+8.                  ;FORTH # 125252

013524  022767  000000  165260          CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
013532  001401                          BEQ     .+4
013534  104010                          HLT+8.                  ;FIRST # 0

013536  022767  000000  165250          CMP     #0,ANS6         ;CHECK SECOND WORD
013544  001401                          BEQ     .+4
013546  104010                          HLT+8.                  ;SECOND # 0

013550  022767  000000  165240          CMP     #0,ANS7         ;CHECK THIRD WORD
013556  001401                          BEQ     .+4
013560  104010                          HLT+8.                  ;THIRD # 0

013562  022767  000000  165230          CMP     #0,ANS8         ;CHECK FORTH WORD
013570  001401                          BEQ     .+4
013572  104010                          HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************************
                                ;TEST 61                TEST OF MODD FPU INSTRUCTION
                                ;       52525 52525 52525 52525 * 44000 0 0 0 =
                                ;       56325 52525 52525 52525 & 0 0 0 0
                                ;       USING AC0       FPS = 47604     FEC = N/A
                                ;*****************************************************************************
013574  104400                            SCOPE
013576  170127  047600                    LDFPS   #47604&57760
013602  172467  000030                    LDD     N61,0           ;LOAD 52525 INTO AC0
013606  171467  000034                    MODD    M61,0           ;MODIFY 52525 BY 44000
013612  170200                            STFPS   FPS             ;STORE FLOATING POINT STATUS
013614  022700  047604                    CMP     #47604,FPS      ;CHECK FLOATING POINT STATUS
013620  001401                            BEQ     .+4             ;BRANCH IF OK
013622  104000                            HLT                     ;FPS NOT EQUAL TO 47604

013624  174067  165152                    STD     0,ANS1          ;STORE FRACTIONAL PART
013630  174167  165156                    STD     0!1,ANS5        ;STORE INTERGER PART
013634  000410                            BR      061

013636  052525  052525  052525  N61:    52525,52525,52525,52525
013644  052525
013646  044000  000000  000000  M61:    44000,0,0,0
013654  000000
013656  022767  000000  165116  061:    CMP     #0,ANS1         ;CHECK FIRST WORD OF FRACTION
013664  001401                            BEQ     .+4
013666  104010                            HLT+8.                  ;FIRST # 0

013670  022767  000000  165106            CMP     #0,ANS2         ;CHECK SECOND WORD
013676  001401                            BEQ     .+4
013700  104010                            HLT+8.                  ;SECOND # 0

013702  022767  000000  165076            CMP     #0,ANS3         ;CHECK THIRD WORD
013710  001401                            BEQ     .+4
013712  104010                            HLT+8.                  ;THIRD # 0

013714  022767  000000  165066            CMP     #0,ANS4         ;CHECK FORTH
013722  001401                            BEQ     .+4
013724  104010                            HLT+8.                  ;FORTH # 0

013726  022767  056325  165056            CMP     #56325,ANS5     ;CHECK FIRST WORD OF INTEGER
013734  001401                            BEQ     .+4
013736  104010                            HLT+8.                  ;FIRST # 56325

013740  022767  052525  165046            CMP     #52525,ANS6     ;CHECK SECOND WORD
013746  001401                            BEQ     .+4
013750  104010                            HLT+8.                  ;SECOND # 52525

013752  022767  052525  165036            CMP     #52525,ANS7     ;CHECK THIRD WORD
013760  001401                            BEQ     .+4
013762  104010                            HLT+8.                  ;THIRD # 52525

013764  022767  052525  165026            CMP     #52525,ANS8     ;CHECK FORTH WORD
013772  001401                            BEQ     .+4
013774  104010                            HLT+8.                  ;FORTH # 52525
```

```
                                ;*************************************************************************
                                ;TEST 62                TEST OF MODD FPU INSTRUCTION
                                ;       37600 0 0 0 * 40200 0 0 0 =
                                ;       0 0 0 0 & 37600 0 0 0
                                ;       USING AC2       FPS = 47600     FEC = N/A
                                ;*************************************************************************
013776  104400                          SCOPE
014000  170127  047600                  LDFPS   #47600&57760
014004  172667  000030                  LDD     N62,2           ;LOAD 37600 INTO AC2
014010  171667  000034                  MODD    M62,2           ;MODIFY 37600 BY 40200
014014  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
014016  022700  047600                  CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
014022  001401                          BEQ     .+4             ;BRANCH IF OK
014024  104000                          HLT                     ;FPS NOT EQUAL TO 47600

014026  174267  164750                  STD     2,ANS1          ;STORE FRACTIONAL PART
014032  174367  164754                  STD     2!1,ANS5        ;STORE INTERGER PART
014036  000410                          BR      062

014040  037600  000000  000000  N62:    37600,0,0,0
014046  000000
014050  040200  000000  000000  M62:    40200,0,0,0
014056  000000
014060  022767  037600  164714  062:    CMP     #37600,ANS1     ;CHECK FIRST WORD OF FRACTION
014066  001401                          BEQ     .+4
014070  104010                          HLT+8.                  ;FIRST # 37600

014072  022767  000000  164704          CMP     #0,ANS2         ;CHECK SECOND WORD
014100  001401                          BEQ     .+4
014102  104010                          HLT+8.                  ;SECOND # 0

014104  022767  000000  164674          CMP     #0,ANS3         ;CHECK THIRD WORD
014112  001401                          BEQ     .+4
014114  104010                          HLT+8.                  ;THIRD # 0

014116  022767  000000  164664          CMP     #0,ANS4         ;CHECK FORTH
014124  001401                          BEQ     .+4
014126  104010                          HLT+8.                  ;FORTH # 0

014130  022767  000000  164654          CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
014136  001401                          BEQ     .+4
014140  104010                          HLT+8.                  ;FIRST # 0

014142  022767  000000  164644          CMP     #0,ANS6         ;CHECK SECOND WORD
014150  001401                          BEQ     .+4
014152  104010                          HLT+8.                  ;SECOND # 0

014154  022767  000000  164634          CMP     #0,ANS7         ;CHECK THIRD WORD
014162  001401                          BEQ     .+4
014164  104010                          HLT+8.                  ;THIRD # 0

014166  022767  000000  164624          CMP     #0,ANS8         ;CHECK FORTH WORD
014174  001401                          BEQ     .+4
014176  104010                          HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 63                TEST OF MODD FPU INSTRUCTION
                                ;       40200 0 0 0 * 10000 0 0 0 =
                                ;       0 0 0 0 & 10000 0 0 0
                                ;       USING AC2       FPS = 47600     FEC = N/A
                                ;*****************************************************************
014200  104400                          SCOPE
014202  170127  047600                  LDFPS   #47600&57760
014206  172667  000030                  LDD     N63,2           ;LOAD 40200 INTO AC2
014212  171667  000034                  MODD    M63,2           ;MODIFY 40200 BY 10000
014216  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
014220  022700  047600                  CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
014224  001401                          BEQ     .+4             ;BRANCH IF OK
014226  104000                          HLT                     ;FPS NOT EQUAL TO 47600

014230  174267  164546                  STD     2,ANS1          ;STORE FRACTIONAL PART
014234  174367  164552                  STD     2!1,ANS5        ;STORE INTERGER PART
014240  000410                          BR      063

014242  040200  000000  000000  N63:    40200,0,0,0
014250  000000
014252  010000  000000  000000  M63:    10000,0,0,0
014260  000000
014262  022767  010000  164512  063:    CMP     #10000,ANS1     ;CHECK FIRST WORD OF FRACTION
014270  001401                          BEQ     .+4
014272  104010                          HLT+8.                  ;FIRST # 10000

014274  022767  000000  164502          CMP     #0,ANS2         ;CHECK SECOND WORD
014302  001401                          BEQ     .+4
014304  104010                          HLT+8.                  ;SECOND # 0

014306  022767  000000  164472          CMP     #0,ANS3         ;CHECK THIRD WORD
014314  001401                          BEQ     .+4
014316  104010                          HLT+8.                  ;THIRD # 0

014320  022767  000000  164462          CMP     #0,ANS4         ;CHECK FORTH
014326  001401                          BEQ     .+4
014330  104010                          HLT+8.                  ;FORTH # 0

014332  022767  000000  164452          CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
014340  001401                          BEQ     .+4
014342  104010                          HLT+8.                  ;FIRST # 0

014344  022767  000000  164442          CMP     #0,ANS6         ;CHECK SECOND WORD
014352  001401                          BEQ     .+4
014354  104010                          HLT+8.                  ;SECOND # 0

014356  022767  000000  164432          CMP     #0,ANS7         ;CHECK THIRD WORD
014364  001401                          BEQ     .+4
014366  104010                          HLT+8.                  ;THIRD # 0

014370  022767  000000  164422          CMP     #0,ANS8         ;CHECK FORTH WORD
014376  001401                          BEQ     .+4
014400  104010                          HLT+8.                  ;FORTH # 0
```

```
                                ;*****************************************************************
                                ;TEST 64                TEST OF MODD FPU INSTRUCTION
                                ;       40600 0 0 0 * 37400 0 0 0 =
                                ;       0 0 0 0 & 40000 0 0 0
                                ;       USING AC0       FPS = 47600     FEC = N/A
                                ;*****************************************************************
014402  104400                          SCOPE
014404  170127  047600                  LDFPS   #47600&57760
014410  172467  000030                  LDD     N64,0           ;LOAD 40600 INTO AC0
014414  171467  000034                  MODD    M64,0           ;MODIFY 40600 BY 37400
014420  170200                          STFPS   FPS             ;STORE FLOATING POINT STATUS
014422  022700  047600                  CMP     #47600,FPS      ;CHECK FLOATING POINT STATUS
014426  001401                          BEQ     .+4             ;BRANCH IF OK
014430  104000                          HLT                     ;FPS NOT EQUAL TO 47600

014432  174067  164344                  STD     0,ANS1          ;STORE FRACTIONAL PART
014436  174167  164350                  STD     0!1,ANS5        ;STORE INTERGER PART
014442  000410                          BR      064

014444  040600  000000  000000  N64:    40600,0,0,0
014452  000000
014454  037400  000000  000000  M64:    37400,0,0,0
014462  000000
014464  022767  040000  164310  064:    CMP     #40000,ANS1     ;CHECK FIRST WORD OF FRACTION
014472  001401                          BEQ     .+4
014474  104010                          HLT+8.                  ;FIRST # 40000

014476  022767  000000  164300          CMP     #0,ANS2         ;CHECK SECOND WORD
014504  001401                          BEQ     .+4
014506  104010                          HLT+8.                  ;SECOND # 0

014510  022767  000000  164270          CMP     #0,ANS3         ;CHECK THIRD WORD
014516  001401                          BEQ     .+4
014520  104010                          HLT+8.                  ;THIRD # 0

014522  022767  000000  164260          CMP     #0,ANS4         ;CHECK FORTH
014530  001401                          BEQ     .+4
014532  104010                          HLT+8.                  ;FORTH # 0

014534  022767  000000  164250          CMP     #0,ANS5         ;CHECK FIRST WORD OF INTEGER
014542  001401                          BEQ     .+4
014544  104010                          HLT+8.                  ;FIRST # 0

014546  022767  000000  164240          CMP     #0,ANS6         ;CHECK SECOND WORD
014554  001401                          BEQ     .+4
014556  104010                          HLT+8.                  ;SECOND # 0

014560  022767  000000  164230          CMP     #0,ANS7         ;CHECK THIRD WORD
014566  001401                          BEQ     .+4
014570  104010                          HLT+8.                  ;THIRD # 0

014572  022767  000000  164220          CMP     #0,ANS8         ;CHECK FORTH WORD
014600  001401                          BEQ     .+4
014602  104010                          HLT+8.                  ;FORTH # 0
```

```
014604  104400                      DONE:   SCOPE
014606  032737  002000  177570              BIT     #SW10,@#SWR     ;RING THE BELL?
014614  001005                              BNE     1$              ;NO!
014616  012767  000007  001242              MOV     #BELL,.TYPE     ;TYPE A BELL
014624  000004  016066                      TYPE    .TYPE
014630  005046                      1$:     CLR     -(6)            ;CLEAR TRACE TRAP
014632  032737  010000  177570              BIT     #SW12,@#SWR     ;RUN WITH TRT?
014640  001010                              BNE     2$
014642  005167  001222                      COM     TRPB
014646  100005                              BPL     2$
014650  052716  000020                      BIS     #20,(6)         ;SET TRACE TRAP
014654  012746  001062                      MOV     #BEGIN,-(6)     ;JUMP TO START OF TEST
014660  000412                              BR      YESRT
014662  012746  001062              2$:     MOV     #BEGIN,-(6)     ;JUMP TO START OF TEST
014666  013700  000042                      MOV     @#42,R0         ;GET MONITOR ADDRESS
014672  001404                              BEQ     3$              ;IF NONE
014674  004710                              JSR     7,(0)           ;GO TO MONITOR
014676  000240                              NOP
014700  000240                              NOP
014702  000240                              NOP
014704  000002                      3$:     RTI
014706  000002                      YESRT:  RTI                     ;RETURN TO PROGRAM FROM TRAP

014710  032737  000400  177570      .EMT:   BIT     #SW08,@#SWR     ;KILL LDUB OR LOOP ON SPEC. TEST
014716  001404                              BEQ     1$
014720  123767  177570  164052              CMPB    @#SWR,ICNT      ;ON RIGHT TEST?   *SW7-0*
014726  001437                              BEQ     OVER
014730  113703  177570              1$:     MOVB    @#SWR,R3        ;GET UB BITS
014734  170003                              LDUB
014736  032737  040000  177570              BIT     #SW14,@#SWR     ;LOOP ON TEST
014744  001026                              BNE     KIT
014746  032737  004000  177570              BIT     #SW11,@#SWR     ;KILL ITERATIONS
014754  001012                              BNE     SAVLAD
014756  105767  164017                      TSTB    ICNT+1
014762  001404                              BEQ     2$              ;BRANCH IF FIRST
014764  126767  001106  164007              CMPB    TIMES,ICNT+1    ;DONE?
014772  001013                              BNE     KIT             ;BRANCH IF NOT
014774  112767  000001  163777      2$:     MOVB    #1,ICNT+1       ;FIRST ITERATION
015002  105267  163772              SAVLAD: INCB    ICNT            ;COUNT TEST NUMBERS
015006  011667  001060                      MOV     (6),LAD         ;SAVE LOOP ADDRESS
015012  016737  163762  177570              MOV     ICNT,@#DISPLAY  ;DISPLAY TEST NO. AND ITERATION COUNT
015020  000002                              RTI                     ;RETURN

015022  105267  163753              KIT:    INCB    ICNT+1
015026  016737  163746  177570      OVER:   MOV     ICNT,@#DISPLAY  ;SET UP DISPLAY
015034  005767  001032                      TST     LAD             ;FIRST ONE?
015040  001760                              BEQ     SAVLAD
015042  016716  001024                      MOV     LAD,(6)         ;FUDGE RETURN ADDRESS
015046  000002                              RTI                     ;FIXES PS
```

```
015050  032737  002000  177570  .TRP:   BIT     #SW10,@#SWR     ;BELL ON ERROR?
015056  001405                          BEQ     1$              ;NO - SKIP
015060  012767  000007  001000          MOV     #BELL,.TYPE     ;TYPE A BELL
015066  000004  016066                  TYPE    .TYPE
015072  004767  000406          1$:     JSR     PC,ERROR        ;COUNT THE NUMBER OF ERRORS
015076  010446                          MOV     R4,-(6)
015100  032737  020000  177570          BIT     #SW13,@#SWR     ;SKIP TYPEOUT IF SET
015106  001072                          BNE     4$
015110  000004  016034                  TYPE    ,RETURN
015114  016646  000002                  MOV     2(6),-(6)       ;PUT ADDRESS OF INSTRUCTION ON STACK
015120  162716  000002                  SUB     #2,(6)
015124  011605                          MOV     (6),TTY         ;TYPE (6) IN OCTAL
015126  004767  000212                  JSR     %7,PRINTR       ;TYPE LEADING ZERO'S
015132  000004  016042                  TYPE    ,SPACE+3
015136  010005                          MOV     R0,TTY          ;TYPE R0 IN OCTAL
015140  004767  000200                  JSR     %7,PRINTR       ;TYPE LEADING ZERO'S
015144  000004  016043                  TYPE    ,SPACE+4
015150  012703  001002                  MOV     #ANS1,R3        ;ADDRESS OF DATA
015154  113604                          MOVB    @(6)+,R4        ;AMOUNT OF DATA IN TABLE
015156  001426                          BEQ     3$
015160  100016                          BPL     2$              ;TYPE STACK?
015162  016667  000006  163612          MOV     6(6),ANS1
015170  016667  000010  163606          MOV     10(6),ANS2
015176  016667  000012  163602          MOV     12(6),ANS3
015204  016667  000014  163576          MOV     14(6),ANS4
015212  042704  177600                  BIC     #177600,R4      ;CLEAR SIGN
015216  000004  016043          2$:     TYPE    ,SPACE+4
015222  012305                          MOV     (3)+,TTY        ;TYPE (3)+ IN OCTAL
015224  004767  000114                  JSR     %7,PRINTR       ;TYPE LEADING ZERO'S
015230  005304                          DEC     R4
015232  001371                          BNE     2$
015234  005700                  3$:     TST     FPS
015236  100016                          BPL     4$
015240  000004  016037                  TYPE    ,SPACE
015244  170367  163552                  STST    FEC
015250  016705  163546                  MOV     FEC,TTY         ;TYPE FEC IN OCTAL
015254  004767  000064                  JSR     %7,PRINTR       ;TYPE LEADING ZERO'S
015260  000004  016042                  TYPE    ,SPACE+3
015264  016705  163534                  MOV     FEA,TTY         ;TYPE FEA IN OCTAL
015270  004767  000050                  JSR     %7,PRINTR       ;TYPE LEADING ZERO'S
015274  012604                  4$:     MOV     (6)+,R4
015276  005737  177570                  TST     @#SWR           ;HALT ON ERROR
015302  100001                          BPL     .+4             ;SKIP IF CONTINUE
015304  000000                          HALT                    ;HALT ON ERROR!
015306  032737  001000  177570          BIT     #SW09,@#SWR     ;CHECK FOR INHIBIT LOOP ON ERROR
015314  001001                          BNE     .+4             ;SKIP IF LOOP ON ERROR
015316  000002                          RTI
015320  105067  163455                  CLRB    ICNT+1
015324  032737  000400  177570          BIT     #SW08,@#SWR     ;CHECK FOR LOAD MICROBREAK
015332  001233                          BNE     KIT             ;BRANCH IF NOT
015334  113703  177570                  MOVB    @#SWR,R3        ;PUT MICROBREAK ADDRESS IN R3
015340  170003                          LDUB                    ;LOAD MICROBREAK
015342  000627                          BR      KIT             ;LOOP ON TEST UNTIL NO ERRORS
```

```
015344  112767  000001  000130  PRINTR: MOVB    #1,A4$          ;SET ZERO FILL SWITCH
015352  000402                  BR      .+6
015354  005067  000122          PRINTS: CLR     A4$             ;SUPRESS LEADING ZERO'S
015360  112767  177772  000115          MOVB    #-6,A4$+1       ;SET COUNT
015366  010446                  MOV     R4,-(6)         ;SAVE R4
015370  012704  015472                  MOV     #3$,R4          ;SET POINTER TO FIRST ASCII CHAR.
015374  105014                  CLRB    (4)             ;CLEAR FIRST BYTE
015376  000405                  BR      2$              ;ROTATE FIRST BIT
015400  105014                  1$:     CLRB    (4)             ;CLEAR BYTE OF CHARACTER
015402  006105                  ROL     TTY             ;ROTATE BIT INTO C
015404  106114                  ROLB    (4)             ;PACK IT
015406  006105                  ROL     TTY             ;ROTATE BIT INTO C
015410  106114                  ROLB    (4)             ;PACK IT
015412  006105                  2$:     ROL     TTY             ;ROTATE BIT INTO C
015414  106114                  ROLB    (4)             ;PACK IT
015416  105714                  TSTB    (4)
015420  001402                  BEQ     .+6
015422  105267  000054                  INCB    A4$
015426  105767  000050                  TSTB    A4$             ;CHECK FILL SWITCH
015432  001402                  BEQ     .+6
015434  152724  000060                  BISB    #'0,(4)+        ;MAKE INTO ASCII CHAR
015440  105267  000037                  INCB    A4$+1
015444  001355                  BNE     1$              ;REPEAT
015446  022704  015472                  CMP     #3$,R4
015452  001002                  BNE     .+6
015454  112724  000060                  MOVB    #'0,(4)+
015460  105014                  CLRB    (4)
015462  000004  015472                  TYPE    ,3$             ;TYPE IT
015466  012604                  MOV     (6)+,R4         ;RESTORE R4
015470  000207                  RTS     PC

015472  000004                  3$:     .BLKW   4
015502  000000                  A4$:    0

015504  005267  000364          ERROR:  INC     ERRORS          ;COUNT ERRORS
015510  132737  000001  000041          BITB    #1,@#41         ;AUTO MODE?
015516  001412                  BEQ     1$              ;NO!
015520  022767  000010  000346          CMP     #10,ERRORS      ;TOO MANY?
015526  001006                  BNE     1$              ;NOT YET
015530  013700  000042                  MOV     @#42,R0         ;GET ADDRESS
015534  001403                  BEQ     1$              ;FORGET IT IF ZERO
015536  005037  000042                  CLR     @#42            ;ZAP 42
015542  004710                  JSR     PC,(0)          ;CALL THE MONITOR
015544  000207                  1$:     RTS     PC              ;RETURN
```

```
015546  012777  015742  000306  POWDWN: MOV     #ILLUP,@UPVEC   ;SET FOR FAST UP
015554  012777  000340  000302          MOV     #340,@UPVEC+2   ;PRIO:7
015562  170246                          STFPS   -(6)            ;GET THE FPS
015564  170011                          SETD
015566  174046                          STD     AC0,-(6)        ;SAVE AC'S
015570  174146                          STD     AC1,-(6)
015572  174246                          STD     AC2,-(6)
015574  174346                          STD     AC3,-(6)
015576  172404                          LDD     AC4,AC0
015600  174046                          STD     AC0,-(6)
015602  172405                          LDD     AC5,AC0
015604  174046                          STD     AC0,-(6)
015606  010046                          MOV     R0,-(6)         ;SAVE REGISTERS
015610  010146                          MOV     R1,-(6)
015612  010246                          MOV     R2,-(6)
015614  010346                          MOV     R3,-(6)
015616  010446                          MOV     R4,-(6)
015620  010546                          MOV     R5,-(6)
015622  010667  000220                  MOV     SP,SAVE6        ;SAVE SP
015626  012777  015636  000226          MOV     #POWUP,@UPVEC   ;SET UP VECTOR
015634  000000                          HALT

015636  016706  000204          POWUP:  MOV     SAVE6,SP        ;GET SP
015642  005001                          CLR     R1              ;WAIT LOOP FOR THE TTY
015644  005201                  1$:     INC     R1
015646  001376                          BNE     1$
015650  012605                          MOV     (6)+,R5         ;GET THE REGISTERS
015652  012604                          MOV     (6)+,R4
015654  012603                          MOV     (6)+,R3
015656  012602                          MOV     (6)+,R2
015660  012601                          MOV     (6)+,R1
015662  012600                          MOV     (6)+,R0
015664  170011                          SETD
015666  172426                          LDD     (6)+,AC0        ;RESTORE THE AC'S
015670  174005                          STD     AC0,AC5
015672  172426                          LDD     (6)+,AC0
015674  174004                          STD     AC0,AC4
015676  172726                          LDD     (6)+,AC3
015700  172626                          LDD     (6)+,AC2
015702  172526                          LDD     (6)+,AC1
015704  172426                          LDD     (6)+,AC0
015706  170126                          LDFPS   (6)+            ;RESTORE FPS
015710  012777  015546  000140          MOV     #POWDWN,@DWNVEC ;SET UP THE POWER DOWN VECTOR
015716  012777  000340  000134          MOV     #340,@DWNVEC+2
015724  000004  015730                  TYPE    ..+2            ;.ASCIZ <15><12>"POWER"
015740  000002                          RTI

015742  000000          ILLUP:  HALT                            ;THE POWER UP SEQUENCE WAS STARTED
015744  000776                  BR      .-2                     ; BEFORE THE POWER DOWN WAS COMPLETE
```

```
015746  010546                  .IOT:   MOV     TTY,-(6)        ;SAVE TTY
015750  017605  000002                  MOV     @2(6),TTY       ;GET ADDRESS TO BE TYPED
015754  105715                  1$:     TSTB    (TTY)           ;TERMINATOR?
015756  001406                          BEQ     2$
015760  112537  177566                  MOVB    (TTY)+,@#177566 ;LOAD AND TYPE THE CHARACTER
015764  105737  177564                  TSTB    @#177564        ;IS THE PRINTER READY
015770  100375                          BPL     .-4
015772  000770                          BR      1$              ;GET THE NEXT CHARACTER
015774  017646  000002          2$:     MOV     @2(6),-(6)      ;GET ADDRESS TO BE TYPED
016000  062766  000002  000004          ADD     #2,4(6)         ;ADD 2 TO THE ADDRESS
016006  022666  000002                  CMP     (6)+,2(6)       ;IS IT .+2?
016012  001006                          BNE     3$              ;NO
016014  062705  000002                  ADD     #2,TTY          ;ADD 2 TO THE ADDRESS
016020  042705  000001                  BIC     #1,TTY          ;BACK UP TO AN EVEN BYTE
016024  010566  000002                  MOV     TTY,2(6)        ;RESTORE ADDRESS
016030  012605                  3$:     MOV     (6)+,TTY        ;RESTORE TTY
016032  000002                          RTI                     ;RETURN

016034  005015      000         RETURN: .ASCIZ  <15><12>        ;RETURN AND LINEFEED
016037      015 020012  020040  SPACE:  .ASCIZ  <15><12>"   "   ;RETURN AND 3 SPACES
016044      000
        016046                  .EVEN
016046  000000                  SAVE6:  0
016050  172160                  FPTADR: 172160                  ;FLOATING POINT ADDRESS ON THE 11/20
016052  000244  000246          FPVECT: 244,246                 ;FLOATING POINT VECTOR ADDRESS
016056  000024  000026          DWNVEC: 24,26                   ;POWER DOWN VECTOR ADDRESS
016062  000024  000026          UPVEC:  24,26                   ;POWER UP VECTOR ADDRESS
016066  000000                  .TYPE:  0
016070  000000                  TRPB:   0
016072  000000                  LAD:    0                       ;LOOP ADDRESS
016074  000000                  ERRORS: 0                       ;ERROR COUNT
016076  000377                  TIMES:  377                     ;ITERATION COUNT
        000001                  .END
```

```
AC0     =%000000        390#    3129    3133*   3134    3135*   3136    3158*   3159    3160*   3161    3165*
AC1     =%000001        391#    3130    3164*
AC2     =%000002        392#    3131    3163*
AC3     =%000003        393#    3132    3162*
AC4     =%000004        394#    3133    3161*
AC5     =%000005        395#    3135    3159*
ANS1    001002          424#     474*    481     512*    519     550*    557     588*    595     626*    633     664*    671
                        702*     709     740*    747     778*    785     816*    823     854*    861     892*    899     930*
                        937      968*    975    1006*   1013    1044*   1051    1082*   1089    1120*   1127    1158*   1165
                       1212*    1220    1266*   1274    1320*   1328    1374*   1382    1428*   1436    1482*   1490    1536*
                       1544     1590*   1598    1644*   1652    1698*   1706    1752*   1760    1806*   1814    1860*   1868
                       1914*    1922    1968*   1976    2022*   2030    2076*   2084    2130*   2138    2184*   2192    2238*
                       2246     2292*   2300    2346*   2354    2400*   2408    2454*   2462    2508*   2516    2562*   2570
                       2616*    2624    2670*   2678    2724*   2732    2778*   2786    2832*   2840    2886*   2894    2940*
                       2948     3045    3049*
ANS2    001004          425#     485     523     561     599     637     675     713     751     789     827     865     903
                        941      979    1017    1055    1093    1131    1170    1224    1278    1332    1386    1440    1494
                       1548     1602    1656    1710    1764    1818    1872    1926    1980    2034    2088    2142    2196
                       2250     2304    2358    2412    2466    2520    2574    2628    2682    2736    2790    2844    2898
                       2952     3050*
ANS3    001006          426#     475*    489     513*    527     551*    565     589*    603     627*    641     665*    679
                        703*     717     741*    755     779*    793     817*    831     855*    869     893*    907     931*
                        945      969*    983    1007*   1021    1045*   1059    1083*   1097    1121*   1135    1174    1228
                       1282     1336    1390    1444    1498    1552    1606    1660    1714    1768    1822    1876    1930
                       1984     2038    2092    2146    2200    2254    2308    2362    2416    2470    2524    2578    2632
                       2686     2740    2794    2848    2902    2956    3051*
ANS4    001010          427#     493     531     569     607     645     683     721     759     797     835     873     911
                        949      987    1025    1063    1101    1139    1178    1232    1286    1340    1394    1448    1502
                       1556     1610    1664    1718    1772    1826    1880    1934    1988    2042    2096    2150    2204
                       2258     2312    2366    2420    2474    2528    2582    2636    2690    2744    2798    2852    2906
                       2960     3052*
ANS5    001012          428#    1159*   1182    1213*   1236    1267*   1290    1321*   1344    1375*   1398    1429*   1452
                       1483*    1506    1537*   1560    1591*   1614    1645*   1669    1699*   1722    1753*   1776    1807*
                       1830     1861*   1884    1915*   1938    1969*   1992    2023*   2046    2077*   2100    2131*   2154
                       2185*    2208    2239*   2262    2293*   2316    2347*   2370    2401*   2424    2455*   2478    2509*
                       2532     2563*   2586    2617*   2640    2671*   2694    2725*   2748    2779*   2802    2833*   2856
                       2887*    2910    2941*   2964
ANS6    001014          429#    1186    1240    1294    1348    1402    1456    1510    1564    1618    1672    1726    1780
                       1834     1888    1942    1996    2050    2104    2158    2212    2266    2320    2374    2428    2482
                       2536     2590    2644    2698    2752    2806    2860    2914    2968
ANS7    001016          430#    1190    1244    1298    1352    1406    1460    1514    1568    1622    1676    1730    1784
                       1838     1892    1946    2000    2054    2108    2162    2216    2270    2324    2378    2432    2486
                       2540     2594    2648    2702    2756    2810    2864    2918    2972
ANS8    001020          431#    1194    1248    1302    1356    1410    1464    1518    1572    1626    1680    1734    1788
                       1842     1896    1950    2004    2058    2112    2166    2220    2274    2328    2382    2436    2490
                       2544     2598    2652    2706    2760    2814    2868    2922    2976
AHB     015502         3081*   3083*   3084*   3098*   3099    3102*   3113#
BEG     001026          414     435#
BEGIN   001062          439     444#    2990    2992
BELL    =  000007       379#    2982    3030
DISPLA= 177570          375#    3019*   3023*
DONE    014604         2979#
DWNVEC  016056          447*    448*    3167*   3168*   3199#
ERROR   015504         3032    3115#
ERRORS  016074         3115*   3118    3204#
FEA     001024          433#    3066
```

```
FEC     001022            418*    432*   3062*   3063
FLTERR  000760            417*    455
FPS    =.000000           380*    417*    469*    470     507*    508     545*    546     583*    584     621*    622     659*
                          660     697*    698     735*    736     773*    774     811*    812     849*    850     887*    888
                          925*    926     963*    964    1001*   1002    1039*   1040    1077*   1078    1115*   1116    1153*
                         1154    1207*   1208    1261*   1262    1315*   1316    1369*   1370    1423*   1424    1477*   1478
                         1531*   1532    1585*   1586    1639*   1640    1693*   1694    1747*   1748    1801*   1802    1855*
                         1856    1909*   1910    1963*   1964    2017*   2018    2071*   2072    2125*   2126    2179*   2180
                         2233*   2234    2287*   2288    2341*   2342    2395*   2396    2449*   2450    2503*   2504    2557*
                         2558    2611*   2612    2665*   2666    2719*   2720    2773*   2774    2827*   2828    2881*   2882
                         2935*   2936    3059
FPTADR  016050            441    3197*
FPVECT  016052            455*    456*   3198*
HLT    = 104000           377*    472     483     487     491     495     510     521     525     529     533     548     559
                          563     567     571     586     597     601     605     609     624     635     639     643     647
                          662     673     677     681     685     700     711     715     719     723     738     749     753
                          757     761     776     787     791     795     799     814     825     829     833     837     852
                          863     867     871     875     890     901     905     909     913     928     933     943     947
                          951     966     977     981     985     989    1004    1015    1019    1023    1027    1042    1053
                         1057    1061    1065    1080    1091    1095    1099    1103    1118    1129    1133    1137    1141
                         1156    1168    1172    1176    1190    1184    1188    1192    1196    1210    1222    1226    1230
                         1234    1238    1242    1246    1250    1264    1276    1280    1284    1288    1292    1296    1300
                         1304    1318    1330    1334    1338    1342    1346    1350    1354    1358    1372    1384    1388
                         1392    1396    1400    1404    1408    1412    1426    1438    1442    1446    1450    1454    1458
                         1462    1466    1480    1492    1496    1500    1504    1508    1512    1516    1520    1534    1546
                         1550    1554    1558    1562    1566    1570    1574    1588    1600    1604    1608    1612    1616
                         1620    1624    1628    1642    1654    1658    1662    1666    1670    1674    1678    1682    1696
                         1708    1712    1716    1720    1724    1728    1732    1736    1750    1762    1766    1770    1774
                         1778    1782    1786    1790    1804    1816    1820    1824    1828    1832    1836    1840    1844
                         1858    1870    1874    1878    1882    1886    1890    1894    1898    1912    1924    1928    1932
                         1936    1940    1944    1948    1952    1966    1978    1982    1986    1990    1994    1998    2002
                         2006    2020    2032    2036    2040    2044    2048    2052    2056    2060    2074    2086    2090
                         2094    2098    2102    2106    2110    2114    2128    2140    2144    2148    2152    2156    2160
                         2164    2168    2182    2194    2198    2202    2206    2210    2214    2218    2222    2236    2248
                         2252    2256    2260    2264    2268    2272    2276    2290    2302    2306    2310    2314    2318
                         2322    2326    2330    2344    2356    2360    2364    2368    2372    2376    2380    2384    2398
                         2410    2414    2418    2422    2426    2430    2434    2438    2452    2464    2468    2472    2476
                         2480    2484    2488    2492    2506    2518    2522    2526    2530    2534    2538    2542    2546
                         2560    2572    2576    2580    2584    2588    2592    2596    2600    2614    2626    2630    2634
                         2638    2642    2646    2650    2654    2668    2680    2684    2688    2692    2696    2700    2704
                         2708    2722    2734    2738    2742    2746    2750    2754    2758    2762    2776    2788    2792
                         2796    2800    2804    2808    2812    2816    2830    2842    2846    2850    2854    2858    2862
                         2866    2870    2884    2896    2900    2904    2908    2912    2916    2920    2924    2938    2950
                         2954    2958    2962    2966    2970    2974    2978

ICNT    001000             423*    457*   3004    3012    3014   3016*   3017*    3019   3022*   3023   3075*
*ILLUP  015742            3125    3172*
KIT     015022            3009    3015    3022*   3077    3080
LAD     016072             458*   3018*   3024    3026    3203*
LOSC   = 170004.            408*
LOUB   = 170003             404*
M      = 000004           1143*   1197    1251    1305    1359    1413    1467    1521    1575    1629    1683    1737    1791
                          1845    1899   1953*    2007    2061    2115    2169    2223    2277    2331    2385    2439    2493
                          2547    2601    2655    2709   2763*
MRS    = 170006             407*
MI      001242             468     479*
MIC     002340             734     745*
```

DCFPLB.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
M11     002462            772     783#
M1120   001054            436     441#
M12     002604            810     821#
M13     002726            848     859#
M14     003050            886     897#
M15     003172            924     935#
M16     003314            962     973#
M17     003436           1000    1011#
M2      001364            506     517#
M20     003560           1038    1049#
M21     003702           1076    1087#
M22     004024           1114    1125#
M23     004152           1152    1164#
M24     004354           1206    1218#
M25     004556           1260    1272#
M26     004760           1314    1326#
M27     005162           1368    1380#
M3      001506            544     555#
M30     005364           1422    1434#
M31     005566           1476    1488#
M32     005770           1530    1542#
M33     006172           1584    1596#
M34     006374           1638    1650#
M35     006576           1692    1704#
M36     007000           1746    1758#
M37     007202           1800    1812#
M4      001630            582     593#
M40     007404           1854    1866#
M41     007606           1908    1920#
M42     010010           1962    1974#
M43     010212           2016    2028#
M44     010414           2070    2082#
M45     010616           2124    2136#
M46     011020           2178    2190#
M47     011222           2232    2244#
M5      001752            620     631#
M50     011424           2286    2298#
M51     011626           2340    2352#
M52     012030           2394    2406#
M53     012232           2448    2460#
M54     012434           2502    2514#
M55     012636           2556    2568#
M56     013040           2610    2622#
M57     013242           2664    2676#
M6      002074            658     669#
M60     013444           2718    2730#
M61     013646           2772    2784#
M62     014050           2826    2838#
M63     014252           2880    2892#
M64     014454           2934    2946#
M7      002216            696     707#
M       000065 =          372#    459     497#    535#    573#    611#    649#    687#    725#    763#    801#    839#    877#
                          915#    953#    991#   1029#   1067#   1105#   1143#   1197#   1251#   1305#   1359#   1413#   1467#
                         1521#   1575#   1629#   1683#   1737#   1791#   1845#   1899#   1953#   2007#   2061#   2115#   2169#
                         2223#   2277#   2331#   2385#   2439#   2493#   2547#   2601#   2655#   2709#   2763#   2817#   2871#
                         2925#   2979#
```

N1	001236	467	478#
N10	002334	733	744#
N11	002456	771	782#
N12	002600	809	820#
N13	002722	847	858#
N14	003044	885	896#
N15	003166	923	934#
N16	003310	961	972#
N17	003432	999	1010#
N2	001360	505	516#
N20	003554	1037	1048#
N21	003676	1075	1086#
N22	004020	1113	1124#
N23	004142	1151	1162#
N24	004344	1205	1216#
N25	004546	1259	1270#
N26	004750	1313	1324#
N27	005152	1367	1378#
N3	001502	543	554#
N30	005354	1421	1432#
N31	005556	1475	1486#
N32	005760	1529	1540#
N33	006162	1583	1594#
N34	006364	1637	1648#
N35	006566	1691	1702#
N36	006770	1745	1756#
N37	007172	1799	1810#
N4	001624	581	592#
N40	007374	1853	1864#
N41	007576	1907	1918#
N42	010000	1961	1972#
N43	010202	2015	2026#
N44	010404	2069	2080#
N45	010606	2123	2134#
N46	011010	2177	2188#
N47	011212	2231	2242#
N5	001746	619	630#
N50	011414	2285	2296#
N51	011616	2339	2350#
N52	012020	2393	2404#
N53	012222	2447	2458#
N54	012424	2501	2512#
N55	012626	2555	2566#
N56	013030	2609	2620#
N57	013232	2663	2674#
N6	002070	657	668#
N60	013434	2717	2728#
N61	013636	2771	2782#
N62	014040	2825	2836#
N63	014242	2879	2890#
N64	014444	2933	2944#
N7	002212	695	706#
OVER	015026	3005	3023#
01	001246	476	481#
010	002344	742	747#
011	002466	780	785#

```
012     002610            818     823#
013     002732            856     861#
014     003054            894     899#
015     003176            932     937#
016     003320            970     975#
017     003442           1008    1013#
02      001370            514     519#
020     003564           1046    1051#
021     003706           1084    1089#
022     004030           1122    1127#
023     004162           1160    1166#
024     004364           1214    1220#
025     004566           1268    1274#
026     004770           1322    1328#
027     005172           1376    1382#
03      001512            552     557#
030     005374           1430    1436#
031     005576           1484    1490#
032     006000           1538    1544#
033     006202           1592    1598#
034     006404           1646    1652#
035     006606           1700    1706#
036     007010           1754    1760#
037     007212           1808    1814#
04      001634            590     595#
040     007414           1862    1868#
041     007616           1916    1922#
042     010020           1970    1976#
043     010222           2024    2030#
044     010424           2078    2084#
045     010626           2132    2138#
046     011030           2186    2192#
047     011232           2240    2246#
05      001756            628     633#
050     011434           2294    2300#
051     011636           2348    2354#
052     012040           2402    2408#
053     012242           2456    2462#
054     012444           2510    2516#
055     012646           2564    2570#
056     013050           2618    2624#
057     013252           2672    2678#
06      002100            666     671#
060     013454           2726    2732#
061     013656           2780    2786#
062     014060           2834    2840#
063     014262           2888    2894#
064     014464           2942    2948#
07      002222            704     709#
PC    =%000007            389#    3032*   3110*   3123*   3124*
POWDWN  015546            447     3125#   3167
POWUP   015636           3144     3147#
PRINTR  015344           3040     3043    3056    3064    3067    3081#
PRINTS  015354           3083#
PS    = 177776            373#
RETURN  016034           3036     3192#
```

```
R0      =%000000        381#    450*    2993*   3042    3120*   3137    3156*
R1      =%000001        382#    3138    3148*   3149*   3155*
R2      =%000002        383#    3139    3154*
R3      =%000003        384#    3006*   3045*   3078*   3140    3153*
R4      =%000004        385#    3033    3046*   3053*   3057*   3068*   3085    3086*   3104    3109*   3141    3152*
R5      =%000005        386#    3142    3151*
SAVE6     016046        3143*   3147    3196#
SAVLAD    015002        3011    3017#   3025
SCOPE   = 104400          376#     465     503     541     579     617     655     693     731     769     807     845     883
                          921      959     997    1035    1073    1111    1149    1203    1257    1311    1365    1419    1473
                         1527     1581    1635    1689    1743    1797    1851    1905    1959    2013    2067    2121    2175
                         2229     2283    2337    2391    2445    2499    2553    2607    2661    2715    2769    2823    2877
                         2931     2979
SP      =%000006         388#     435*    445*    3143    3147*
SPACE     016037        3041    3044    3054    3061    3065    3193#
STAD    = 170005         405#
STQD    = 170007         406#
SWR     = 177570         374#     375    2980    2985    3002    3004    3006    3008    3010    3028    3034    3069    3072
                        3076    3078
SW08    = 000400         403#    3002    3076
SW09    = 001000         402#    3072
SW10    = 002000         401#    2980    3028
SW11    = 004000         400#    3010
SW12    = 010000         399#    2985
SW13    = 020000         398#    3034
SW14    = 040000         397#    3008
SW15    = 100000         396#
TIMES     016076        3014    3205#
TRPB      016070        2987*   3202#
TTY     =%000005         387#    3039*   3042*   3055*   3063*   3066*   3090*   3092*   3094*   3174    3175*   3176    3178
                        3186*   3187*   3188    3189*
TYPE    = 000004         378#    2983    3031    3036    3041    3044    3054    3061    3065    3108    3169
UPVEC     016062        3125*   3126*   3144*   3200#
YESRT     014706         438*    446     2991    3000#
.       = 016100         410#    411     412#    416#    421#    471     482     486     490     494     509     520     524
                         528     532     547     558     562     566     570     585     596     600     604     608     623
                         634     638     642     646     661     672     676     680     684     699     710     714     718
                         722     737     748     752     756     760     775     786     790     794     798     813     824
                         828     832     836     851     862     866     870     874     889     900     904     908     912
                         927     938     942     946     950     965     976     980     984     988    1003    1014    1018
                        1022    1026    1041    1052    1056    1060    1064    1079    1090    1094    1098    1102    1117
                        1128    1132    1136    1140    1155    1167    1171    1175    1179    1183    1187    1191    1195
                        1209    1221    1225    1229    1233    1237    1241    1245    1249    1263    1275    1279    1283
                        1287    1291    1295    1299    1303    1317    1329    1333    1337    1341    1345    1349    1353
                        1357    1371    1383    1387    1391    1395    1399    1403    1407    1411    1425    1437    1441
                        1445    1449    1453    1457    1461    1465    1479    1491    1495    1499    1503    1507    1511
                        1515    1519    1533    1545    1549    1553    1557    1561    1565    1569    1573    1587    1599
                        1603    1607    1611    1615    1619    1623    1627    1641    1653    1657    1661    1665    1669
                        1673    1677    1681    1695    1707    1711    1715    1719    1723    1727    1731    1735    1749
                        1761    1765    1769    1773    1777    1781    1785    1789    1803    1815    1819    1823    1827
                        1831    1835    1839    1843    1857    1869    1873    1877    1881    1885    1889    1893    1897
                        1911    1923    1927    1931    1935    1939    1943    1947    1951    1965    1977    1981    1985
                        1989    1993    1997    2001    2005    2019    2031    2035    2039    2043    2047    2051    2055
                        2059    2073    2085    2089    2093    2097    2101    2105    2109    2113    2127    2139    2143
                        2147    2151    2155    2159    2163    2167    2181    2193    2197    2201    2205    2209    2213
                        2217    2221    2235    2247    2251    2255    2259    2263    2267    2271    2275    2289    2301
```

```
                    2305    2309    2313    2317    2321    2325    2329    2343    2355    2359    2363    2367    2371
                    2375    2379    2383    2397    2409    2413    2417    2421    2425    2429    2433    2437    2451
                    2463    2467    2471    2475    2479    2483    2487    2491    2505    2517    2521    2525    2529
                    2533    2537    2541    2545    2559    2571    2575    2579    2583    2587    2591    2595    2599
                    2613    2625    2629    2633    2637    2641    2645    2649    2653    2667    2679    2683    2687
                    2691    2695    2699    2703    2707    2721    2733    2737    2741    2745    2749    2753    2757
                    2761    2775    2787    2791    2795    2799    2803    2807    2811    2815    2829    2841    2845
                    2849    2853    2857    2961    2865    2869    2883    2895    2899    2903    2907    2911    2915
                    2919    2923    2937    2949    2953    2957    2961    2965    2969    2973    2977    3070    3073
                    3082    3097    3100    3105    3112#   3169    3173    3180    3195#
.EMT    014710       453    3002#
.TCP    015746       449    3174#
.TRP    015050       451    3028#
.TYPE   016066      2982*   2983    3030*   3031    3201#
```

DUMP 371# 3039 3042 3055 3063 3066
PRINT 371# 3169
SDUMP 371#
STATUS 371# 469 507 545 583 621 659 697 735 773 811 849 887 925 963
1001 1039 1077 1115 1153 1207 1261 1315 1369 1423 1477 1531 1585 1639 1693
1747 1801 1855 1909 1963 2017 2071 2125 2179 2233 2287 2341 2395 2449 2503
2557 2611 2665 2719 2773 2827 2881 2935
TYPEM 371# 2982 3030
$MODD 459# 1143 1197 1251 1305 1359 1413 1467 1521 1575 1629 1683 1737 1791 1845
1899 1953 2007 2061 2115 2169 2223 2277 2331 2385 2439 2493 2547 2601 2655
2709 2763 2817 2871 2925
$MODF 459# 497 535 573 611 649 687 725 763 801 839 877 915 953 991
1029 1067 1105

DCFPLB.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

```
ADD     3183  3196
BEQ      471   482   486   490   494   509   520   524   528   532   547   558   562   566   570
         585   596   600   604   608   623   634   638   642   646   661   672   676   680   684
         699   710   714   718   722   737   748   752   756   760   775   786   790   794   798
         813   824   828   832   836   851   862   866   870   874   889   900   904   908   912
         927   938   942   946   950   965   976   980   984   988  1003  1014  1018  1022  1026
        1041  1052  1056  1060  1064  1079  1090  1094  1098  1102  1117  1128  1132  1136  1140
        1155  1167  1171  1175  1179  1183  1187  1191  1195  1209  1221  1225  1229  1233  1237
        1241  1245  1249  1263  1275  1279  1283  1287  1291  1295  1299  1303  1317  1329  1333
        1337  1341  1345  1349  1353  1357  1371  1383  1387  1391  1395  1399  1403  1407  1411
        1425  1437  1441  1445  1449  1453  1457  1461  1465  1479  1491  1495  1499  1503  1507
        1511  1515  1519  1533  1545  1549  1553  1557  1561  1565  1569  1573  1587  1599  1603
        1607  1611  1615  1619  1623  1627  1641  1653  1657  1661  1665  1669  1673  1677  1681
        1695  1707  1711  1715  1719  1723  1727  1731  1735  1749  1761  1765  1769  1773  1777
        1781  1785  1789  1803  1815  1819  1823  1827  1831  1835  1839  1843  1857  1869  1873
        1877  1881  1885  1889  1893  1897  1911  1923  1927  1931  1935  1939  1943  1947  1951
        1965  1977  1981  1985  1989  1993  1997  2001  2005  2019  2031  2035  2039  2043  2047
        2051  2055  2059  2073  2085  2089  2093  2097  2101  2105  2109  2113  2127  2139  2143
        2147  2151  2155  2159  2163  2167  2181  2193  2197  2201  2205  2209  2213  2217  2221
        2235  2247  2251  2255  2259  2263  2267  2271  2275  2289  2301  2305  2309  2313  2317
        2321  2325  2329  2343  2355  2359  2363  2367  2371  2375  2379  2383  2397  2409  2413
        2417  2421  2425  2429  2433  2437  2451  2463  2467  2471  2475  2479  2483  2487  2491
        2505  2517  2521  2525  2529  2533  2537  2541  2545  2559  2571  2575  2579  2583  2587
        2591  2595  2599  2613  2625  2629  2633  2637  2641  2645  2649  2653  2667  2679  2683
        2687  2691  2695  2699  2703  2707  2721  2733  2737  2741  2745  2749  2753  2757  2761
        2775  2787  2791  2795  2799  2803  2807  2811  2815  2829  2841  2845  2849  2853  2857
        2861  2865  2869  2883  2895  2899  2903  2907  2911  2915  2919  2923  2937  2949  2953
        2957  2961  2965  2969  2973  2977  2994  3003  3005  3013  3025  3029  3047  3097  3100
        3117  3121  3177
BIC     3053  3187
BIS     2989
BISB    3101
BIT     2980  2985  3002  3008  3010  3028  3034  3072  3076
BITB    3116
BNE     2981  2986  3009  3011  3015  3035  3058  3073  3077  3103  3105  3119  3150  3185
BPL     2988  3048  3060  3070  3180
BR       439   476   514   552   590   628   666   704   742   780   818   856   894   932   970
        1008  1046  1084  1122  1160  1214  1268  1322  1376  1430  1484  1538  1592  1646  1700
        1754  1808  1862  1916  1970  2024  2078  2132  2186  2240  2294  2348  2402  2456  2510
        2564  2618  2672  2726  2780  2834  2888  2942  2991  3080  3082  3088  3173  3181
CLR      457   458  2984  3083  3122  3148
CLRB    3075  3087  3089  3107
CMP      470   481   485   489   493   508   519   523   527   531   546   557   561   565   569
         584   595   599   603   607   622   633   637   641   645   660   671   675   679   683
         698   709   713   717   721   736   747   751   755   759   774   785   789   793   797
         812   823   827   831   835   850   861   865   869   873   888   899   903   907   911
         926   937   941   945   949   964   975   979   983   987  1002  1013  1017  1021  1025
        1040  1051  1055  1059  1063  1078  1089  1093  1097  1101  1116  1127  1131  1135  1139
        1154  1166  1170  1174  1178  1182  1186  1190  1194  1208  1220  1224  1228  1232  1236
        1240  1244  1248  1262  1274  1278  1282  1286  1290  1294  1298  1302  1316  1328  1332
        1336  1340  1344  1348  1352  1356  1370  1382  1386  1390  1394  1398  1402  1406  1410
        1424  1436  1440  1444  1448  1452  1456  1460  1464  1478  1490  1494  1498  1502  1506
        1510  1514  1518  1532  1544  1548  1552  1556  1560  1564  1568  1572  1586  1598  1602
        1606  1610  1614  1618  1622  1626  1640  1652  1656  1660  1664  1668  1672  1676  1680
        1694  1706  1710  1714  1718  1722  1726  1730  1734  1748  1760  1764  1768  1772  1776
        1780  1784  1788  1802  1814  1818  1822  1826  1830  1834  1838  1842  1856  1868  1872
```

```
        1876  1880  1884  1888  1892  1896  1910  1922  1926  1930  1934  1938  1942  1946  1950
        1964  1976  1980  1984  1988  1992  1996  2000  2004  2018  2030  2034  2038  2042  2046
        2050  2054  2058  2072  2084  2088  2092  2096  2100  2104  2108  2112  2126  2138  2142
        2146  2150  2154  2158  2162  2166  2180  2192  2196  2200  2204  2208  2212  2216  2220
        2234  2246  2250  2254  2258  2262  2266  2270  2274  2288  2300  2304  2308  2312  2316
        2320  2324  2328  2342  2354  2358  2362  2366  2370  2374  2378  2382  2396  2408  2412
        2416  2420  2424  2428  2432  2436  2450  2462  2466  2470  2474  2478  2482  2486  2490
        2504  2516  2520  2524  2528  2532  2536  2540  2544  2558  2570  2574  2578  2582  2586
        2590  2594  2598  2612  2624  2628  2632  2636  2640  2644  2648  2652  2666  2678  2682
        2686  2690  2694  2698  2702  2706  2720  2732  2736  2740  2744  2748  2752  2756  2760
        2774  2786  2790  2794  2798  2802  2806  2810  2814  2928  2840  2844  2848  2852  2856
        2860  2864  2868  2882  2894  2898  2902  2906  2910  2914  2918  2922  2936  2948  2952
        2956  2960  2964  2968  2972  2976  3104  3118  3184
CMPB    3004  3014
COM     2987
DEC     3057
EMT      377
HALT     411   419  3071  3145  3172
INC     3115  3149
INCB    3017  3022  3098  3102
IOT      378
JMP      414
JSR     2995  3032  3040  3043  3056  3064  3067  3123
LDD     1151  1205  1259  1313  1367  1421  1475  1529  1583  1637  1691  1745  1799  1853  1907
        1961  2015  2069  2123  2177  2231  2285  2339  2393  2447  2501  2555  2609  2663  2717
        2771  2825  2879  2933  3133  3135  3158  3160  3162  3163  3164  3165
LDF      467   505   543   581   619   657   695   733   771   809   847   885   923   961   999
        1037  1075  1113
LDFPS    466   504   542   580   618   656   694   732   770   808   846   884   922   960   998
        1036  1074  1112  1150  1204  1258  1312  1366  1420  1474  1528  1582  1636  1690  1744
        1798  1852  1906  1960  2014  2068  2122  2176  2230  2284  2338  2392  2446  2500  2554
        2608  2662  2716  2770  2824  2878  2932  3166
LDUB    3007  3079
MODD    1152  1206  1260  1314  1368  1422  1476  1530  1584  1638  1692  1746  1800  1854  1908
        1962  2016  2070  2124  2178  2232  2286  2340  2394  2448  2502  2556  2610  2664  2718
        2772  2826  2880  2934
MODF     468   506   544   582   620   658   696   734   772   810   848   886   924   962  1000
        1038  1076  1114
MOV      435   436   438   441   444   445   446   447   448   449   450   451   452   453   454
         455   456  2982  2990  2992  2993  3018  3019  3023  3026  3030  3033  3037  3039  3042
        3045  3049  3050  3051  3052  3055  3063  3066  3068  3085  3086  3109  3120  3125  3126
        3137  3138  3139  3140  3141  3142  3143  3144  3147  3151  3152  3153  3154  3155  3156
        3167  3168  3174  3175  3182  3188  3189
MOVB    3006  3016  3046  3078  3081  3084  3106  3178
NOP     2996  2997  2998
ROL     3090  3092  3094
ROLB    3091  3093  3095
RTI      420  2999  3000  3020  3027  3074  3170  3190
RTS     3110  3124
SETD    3128  3157
STD     1158  1159  1212  1213  1266  1267  1320  1321  1374  1375  1428  1429  1482  1483  1536
        1537  1590  1591  1644  1645  1698  1699  1752  1753  1806  1807  1860  1861  1914  1915
        1968  1969  2022  2023  2076  2077  2130  2131  2184  2185  2238  2239  2292  2293  2346
        2347  2400  2401  2454  2455  2508  2509  2562  2563  2616  2617  2670  2671  2724  2725
        2778  2779  2832  2833  2886  2887  2940  2941  3129  3130  3131  3132  3134  3136  3159
        3161
```

DCFPLB.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

```
STF      474   475   512   513   550   551   588   589   626   627   664   665   702   703   740
         741   778   779   816   817   854   855   892   893   930   931   968   969  1006  1007
        1044  1045  1082  1083  1120  1121
STFPS    417   469   507   545   583   621   659   697   735   773   811   849   887   925   963
        1001  1039  1077  1115  1153  1207  1261  1315  1369  1423  1477  1531  1585  1639  1693
        1747  1801  1855  1909  1963  2017  2071  2125  2179  2233  2287  2341  2395  2449  2503
        2557  2611  2665  2719  2773  2827  2881  2935  3127
STST     418  3062
SUB     3038
TRAP     376
TST      437  3024  3059  3069
TSTB    3012  3096  3099  3176  3179
.ASCIZ  3170  3192  3193
.BLKW   3112
.ENABL   371
.END    3206
.ENDC    474   512   550   588   626   664   702   740   778   816   854   892   930   968  1006
        1044  1082  1120  1158  1212  1266  1320  1374  1428  1482  1536  1590  1644  1698  1752
        1806  1860  1914  1968  2022  2076  2130  2184  2238  2292  2346  2400  2454  2508  2562
        2616  2670  2724  2778  2832  2886  2940
.EVEN   3170  3195
.IFNZ    474   512   550   588   626   664   702   740   778   816   854   892   930   968  1006
        1044  1082  1120  1158  1212  1266  1320  1374  1428  1482  1536  1590  1644  1698  1752
        1806  1860  1914  1968  2022  2076  2130  2184  2238  2292  2346  2400  2454  2508  2562
        2616  2670  2724  2778  2832  2886  2940
.IIF     470   508   546   584   622   660   698   736   774   812   850   888   926   964  1002
        1040  1078  1116  1154  1208  1262  1316  1370  1424  1478  1532  1586  1640  1694  1748
        1802  1856  1910  1964  2018  2072  2126  2180  2234  2288  2342  2396  2450  2504  2558
        2612  2666  2720  2774  2828  2882  2936
.LIST    327   371   411   421   459   497   535   573   611   649   687   725   763   801   839
         877   915   953   991  1029  1067  1105  1143  1197  1251  1305  1359  1413  1467  1521
        1575  1629  1683  1737  1791  1845  1899  1953  2007  2061  2115  2169  2223  2277  2331
        2385  2439  2493  2547  2601  2655  2709  2763  2817  2871  2925  2979  3028  3081  3125
        3170  3174
.MACR    371   459
.MACRO   371
.NLIST   327   371   411   421   459   497   535   573   611   649   687   725   763   801   839
         877   915   953   991  1029  1067  1105  1143  1197  1251  1305  1359  1413  1467  1521
        1575  1629  1683  1737  1791  1845  1899  1953  2007  2061  2115  2169  2223  2277  2331
        2385  2439  2493  2547  2601  2655  2709  2763  2817  2871  2925  2979  3028  3081  3125
        3170  3174
.PAGE    497   535   573   611   649   687   725   763   801   839   877   915   953   991  1029
        1067  1105  1143  1197  1251  1305  1359  1413  1467  1521  1575  1629  1683  1737  1791
        1845  1899  1953  2007  2061  2115  2169  2223  2277  2331  2385  2439  2493  2547  2601
        2655  2709  2763  2817  2871  2925  2979
.REM     330
.REPT      2   411  1143
.SBTTL   327   371   421   459  2979  3028  3081  3125  3174
.TITLE   327
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ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

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MAINDEC-11-DCFPL-B       TEST OF MODF AND MODD   MACY11 27(732)  03-SEP-76  14:57  PAGE 82
DCFPLB.P11       CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

 *DCFPLB,DCFPLB.SEQ/SOL/CRF/DS:ERFZ/EN:ABS=DSKM:DCFPLB.P11
 RUN-TIME:  16 28  4 SECONDS
 RUN-TIME RATIO: 1660/51=32.5
 CORE USED:   9K  (18 PAGES)
```
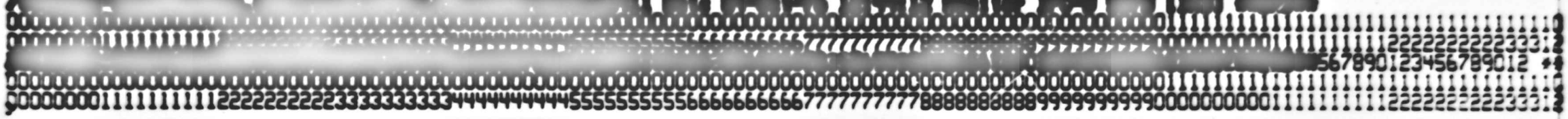

Spooler runtime 10 Seconds, 45 KCS, 265 disk reads, 3 disk writes, 79 pages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